ECHO IRELAND

IRISH RADIO TRANSMITTERS SOCIETY

Winter 2017 - 85 YEARS













Irish schools talk to the ISS via Amateur Radio - October 2017

PATRON Michael D. Higgins PRESIDENT OF IRELAND

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Pat O'Connor EI9HX

A Seasonal Message from our President ...

It seems like it was only yesterday that I was writing a Christmas message to you all so that if I wasn't aware of it already I know now that the years certainly do fly by and it is not long before one can be looking back, like me, on being licensed for almost fifty years. We are all aware that a lot has changed in life over fifty years so why should we think that the nature of amateur radio should not change and should not continue to change. We have to embrace change in life or we just get left behind. If we value the amateur service which has given us all so much satisfaction over all the years that each one of us has been involved in it we cannot afford to ignore the necessity to simply move with the times. It is incumbent on all of us to ensure that the amateur service remains relevant and does not become an anachronistic pastime. I will come back to that theme later in my message.



I would like to take this opportunity to thank all of you who have contributed so much to the furtherance of the aims of the society and to the promotion of the hobby in general over the last year. This is all done in a voluntary capacity and in a spirit of service to our society and the wider amateur radio community. In particular I would like to thank all of the society officers, the committee members, working group members and the various managers, including of course the QSL managers, all of whom work tirelessly on our behalf. A very special word of thanks goes to the many people who are involved in the production of the society publications, Echo Ireland and EI News. Many of you are not aware of the number of people who are involved in ensuring that these publications get to your inbox or letter box. The members regard these publications as essential services of the society to which they pay their annual membership fees and we must ensure these services continue to be provided. The weekly news bulletins are also an essential service of the society. Again there is a big group of people involved in maintaining the production and delivery of the news bulletins. It would be invidious to mention any one person but suffice it to say that all of the abovementioned deserve our sincere thanks. Many of them have served their time in committee and other positions and continue to do so way beyond the time that anyone should be expected to put in huge voluntary efforts. It is all done in the interests of the society and the hobby.

Last September Brendan EI6IZ and I represented IRTS at the International Amateur Radio Union Region 1 Conference in Landshut, Germany. Elsewhere in this edition of Echo Ireland you will find a report on the conference and all that transpired there. While issues relating to the World Radio Conference in 2019 were the subject of some discussion the conference focussed on two main themes, these being the future of the amateur radio service and the financial challenges facing the IARU Region 1 organisation. I mentioned the subject of the future of amateur radio in my opening remarks in this festive message. We were treated to a very interesting presentation by Don Beattie G3BJ, President of the Region in which he outlined in a very stark way the perilous future the amateur service might have if we don't recognise the need to adapt to new aspects of the science of radio communications and if we don't embrace many aspects of the hobby which might seem alien to many of us "old timers". Don's presentation was supported by two very interesting contributions, one by a young amateur delegate from the Austrian society who outlined how he and his peers view the hobby. The other was from a South African delegate who described their programme for introducing the very young enthusiast to the hobby. I would have thought that the very essence of the hobby was to pioneer new methods and to experiment in innovative ways so it is incumbent on us to listen very carefully to the messages delivered at the conference.

The other theme I mentioned was finance. There are grave concerns about the financial situation unless measures are taken to correct certain trends. At the heart of this is the state of health of the member societies so we must ensure that we do our part to maintain a vibrant society and grow our membership if possible. I should also mention that present at the conference we had Séamus EI8BP and Dave EI3IO in their roles, respectively, as chair of the Political Relations Committee and chair of the Spectrum Regulatory Liaison Committee. Our society, small as it is, exerts considerable influence in determining future policy for amateur radio at an international level. Have a look at the conference report and Don's presentation.

On a personal note I am looking forward to being QRV again in the New Year. For the second time in a few years I have been QRT as EI8CC. In the first instance while EI8CC was inactive I was operating as 7P8CC but throughout this year major renovations were undertaken here at this QTH and I am looking forward to operating from a new shack in the New Year. The importance of making full use of our allocations cannot be underestimated. Cases for new or expanded allocations ring a little hollow when criticism can be levelled at us for not utilising our current resources. On that note I would like to congratulate the members of my own club the Limerick Radio Club for their hugely successful initiative on the Wild Atlantic Way. This has contributed in no small way both to increased use of the amateur bands and to the promotion of Ireland as a desirable holiday destination. Dave EI6AL deserves special mention for the great support he gave to the management of the award scheme. I also want to mention here the huge contribution those who have been involved in the ARISS programme have made to raising awareness of amateur radio among the youth.

I mentioned in my first Christmas message that I hoped to visit the clubs during my tenure. I have managed a few. Time really caught up on me but I hope before my term of office comes to an end that I will manage to cover the remainder. While my term of office comes to an end next April a similar situation arises for a significant number of committee members. I would urge members to consider coming forward to help in the overall effort of contributing to maintaining the society services. The clubs form the real backbone of the society and while a number of club representatives present themselves at national committee meetings there is no reason why every club affiliated to IRTS should not have representation there. They will have the ideal opportunity to open up an important channel and make their voices heard. The future of the amateur service depends to a large extent on the efforts of the national society working on behalf of the members so the greater the participation the better will be the outcome. At the very least we should avail of every opportunity to encourage those radio amateurs whom we know are not members of the national society to join it.

Finally let me take this opportunity to wish all readers a happy and peaceful Christmas and a prosperous New Year.

Nollaig shona is Athbliain faoi mhaise daoibh go leir.

Gerry Gervin EI8CC PRESIDENT IRTS

News from around the Clubs

Avondhu Radio Club

The Messe in Friedrichshafen was the destination in July for some members of the club. On display outside was an example of a *WRTC 2018* station. The World Radio Teamsport Championship will be held in Jessen/Wittenberg in July 2018. Participants in the "Olympics" of radio will have a single mast supporting a beam for 10/15/20m, a rotary folded dipole for 40m and an inverted V for 80m.



WRTC 2018 Station at HamRadio 2017

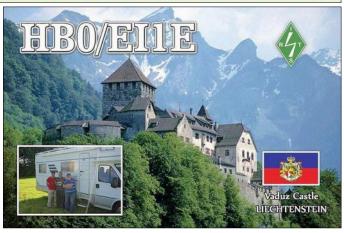
A QSL card was printed before the trip in preparation for a small stopover in HB0. It was only after receiving the cards from the printers that we discovered that the CEPT rules do not allow club calls being used while visiting other countries. Luckily, we had individual call signs printed on the back of our card.



Your Society Needs You!

To ensure continued publication of *Echo Ireland* an Editor is urgently required

Contact Gerry EI8CC



QSL Card used for HB0 operation

Members of the club have contributed over 14,000 QSOs to the Wild Atlantic Way project this year. Well done to all involved!

EI1E achieved overall winners of the UK-EI SSB DX contest 2017. More EIs should consider supporting these contests. They are fun and by participating you are putting EI counties on the air as multipliers in an international contest.

Congratulations to Seoirse Neilan who after he passed his licence exam recently is now EI8HSB. We wish him many years of enjoyment on the radio.



Hans operates as HB0/EI9GRB, near Vaduz, Liechtenstein



Kerry Amateur Radio Group

Declan Horan EI9FVB

Saturday 18th November saw the Kerry Amateur Radio Group exhibit at the 2nd Kerry Science Festival. This was a great success with much interest being shown in the club stand by the many visitors to the STEM showcase hosted at the Institute of Technology Tralee's North Campus by the School of Science, Technology, Engineering and Mathematics.

Demonstration stations covering HF, FM and satellite were on display for the visitors. Having live stations proved a huge success and was key in attracting visitors, with club members being kept very busy throughout the day.

The HF station consisted of the IC756 Pro2 with the EI9FVB Foldable Cobwebb antenna mounted on a 24ft aluminium pole mounted outside. While the bands were generally bust with the LZ contest, a number of QSOs were made by junior-op Luke, under the supervision of Eoin EI8HC. Eoin and Luke also helped out in antenna set up. Tom EI3AL was kept busy with the satellite and CW aspect of the stand, while Conor EI4JN was on hand to demonstrate APRS and talk about AREN. Special thanks are due to Declan EI9FVB, Krishna EI4HAB and Sukumar for organising space at the event and for inclusion on the official webpage for the event. Another special thank you goes to STEM at ITT for organising the event and for the provision of refreshments on the day.

Once again this event turned out to be an ideal way of introducing the general public and future students of ITT to the hobby of amateur radio. The level of interest shown was great and serves to demonstrate that our hobby has a bright



Luke (Junior Op)



Sukamar and Krishna EI4HAB enjoying a welldeserved ice-cream break at ITT



Declan E19FVB talking through 2m repeater after checking on the Cobwebb Antenna

future. A video of the event is available on our YouTube channel.

Monthly KARG Meetings

Monthly KARG meetings continue at the usual venues alternating between Killarney and Castleisland, on the last Saturday of each month. Visitors are welcome to come along to any of our events or regular monthly meetings, or can contact us via www.kerryamateurradiogroup.com₂ or follow us on our Facebook page [Kerry Amateur Radio Group] and our YouTube channel.

Regular updates and photos are also available on our QRZ page for EI1K.

EI88WAW - Wild Atlantic Way

While the bands have been generally poor over the past few months, KARG has been busy airing the EI88WAW call as much as possible, with special focus on 80m, 40m and 20m bands in an effort to allow as many EI, GI and G ops to work the call. Thanks to Brendan EI0CZ for his huge contribution of CW QSOs using the call. If anybody still needs this call, please contact the WAW coordinator or Declan at horandx@gmail.com to arrange a sked.

KARG would like to extend the invitation to any EI op, to activate the EI88WAW call at any time until the end of the

year, on any mode. Time slots can be booked through the WAW coordinator on the IRTS webpage, and any activation at all is greatly appreciated. A lot of stations may be looking for their last WAW QSO to complete the full house and get the award.



Many thanks to the Limerick Radio Club for creating the event, the IRTS and all others that have facilitated its making this special event a success.

Jamboree On The Air (JOTA)

From Friday 20th October through to Sunday 22nd October KARG members participated in the 60th Jamboree On The Air, with the 3rd Limerick Scout Group, using the E11K callsign. Operation was from the Curraghchase Scout Centre in County Limerick, where the group camped for the weekend. KARG assisted the Scout Group.

For some scouts, it was their first introduction to radio communications while others had some exposure from various badge work that they had undertaken. A hands-on approach was taken with the Scouts involved in all aspects of the event from logistics through to execution.

The scout group were challenged in a number of ways in the lead up to and over the course of the event. As well as setting up and operating the radio communications stations for Jamboree-On-The-Air, they also undertook a number of other activities.

Firstly they were challenged to plan and erect a structure capable of raising a HF dipole and a VHF / UHF vertical antenna. In addition they were supplied with the component parts of a VHF station with which they had to utilise their various skills to reach a designated place within the 200 acre site and make operational a VHF station unassisted by any adults then undertook a task assigned to them when they made contact with the base station, reporting back the results of the task over the airwaves. The weekend exercised their logistic, map reading, pioneering and camping skills amongst others.

The station was operational from Friday 20th October in the evening through to Sunday 22nd October mid-day and the group are registered on the JOTA website as participating.



(l to r) Bonnie WB2ALQ, Declan EI9FVB, Don AK2S, Jim KD2ARU, Stan NB2S, Frank K2SQS. (Lance KC2MTO missing from photo)





Souvenir Brick and Certificate from the Diamond Terrace at W1AW as a memorial to Matt W2MAT/E14ID SK

Lunch with Burlington County Radio Club (BCRC), New Jersey - K2TD

KARG Chairman Declan EI9FVB, met with friends from the BCRC for lunch (photo opposite) on a recent trip to NJ, where happenings in both KARG and BCRC clubs were discussed. BCRC recently built a Cobwebb antenna, based on the EI9FVB foldable Cobwebb, which they used in the NJ QSO party with great success.

BCRC President, Frank K2SQS, presented Declan with a souvenir brick & certificate from the Diamond Terrace at W1AW as a memorial to Silent Key Matt W2MAT / EI4ID, to pass on to Shelia (Matt's XYL). Matt was well known in EI circles, as a regular caller to the Irish Hour net on Sundays on 21.317 MHz, and always had a keen interest in chatting to EI Ops. Matt's XYL comes from Castleisland, Co. Kerry.

Transatlantic Cable Station 2017

As reported in the last edition of Echo Ireland, KARG celebrated the 151st Anniversary of the successful completion of the transatlantic cable from Hearts Content, Newfoundland, Canada to Valentia, last July. During the event Evelyn O'Rourke, from the RTE1 Seascapes programme recorded interviews with KARG members. Leading from this, KARG was featured on the Seascapes programme aired on Friday 6th October 2017. A podcast of this programme is still available online at http://www.rte.ie/radio1/seascapes/programmes/2017/1006/910358- seascapes-friday-6-october-2017/

Shannon Basin Radio Club

Brian Canning EI8IU Anthony Dolan EI6GGB

During the summer the Shannon Basin Radio Club took part in the 6 hour section of the SSB Field Day. Thanks to Garbally College for letting us use their grounds once again. Unfortunately conditions were not the best. We also had antenna issues so it wasn't one of our best performances. It did however give some of our students who were taking part in our radio licence course the chance to see a field-day style station being set up and to operate themselves.

We also would like to wish our students the best of luck in their licence exam. We intend running the radio licence again in the spring and also plan to have a CW course also in the spring so please see www.shannonbasinradioclub.com.

Several club members also took part in HF contests such as CQWW CW, CQWW SSB, CQWW RTTY and WAG so we look forward to getting the results!

Fergus EI6IB also spent a few "pleasant" days assembling his recently purchased QCX transceiver kit. It is a 40m CW 5 watt trx and some successful QSOs have already been logged. The kit comes with very well laid out instruction. A range of kits covering different bands are available from www.qrp-labs.com for \$49.

With that, all that remains is to wish everyone a Very Happy Christmas with lots of DX in 2018!



Brian EI8IU operates EI3Z/P under the watchful eye of Owen EI4GGB during SSB Field Day



Niall EI4CF, Craig EI3FW, Paul E11701, Owen EI4GGB, Brian EI8IU, Fergus EI6BIB, Anthony EI6GGB

Mayo Radio Experimenters Network

Dominic Curtin EI9.IS



The Mayo Radio Experimenters Network held its 2017 AGM on the first Wednesday of October.

The Club Officials for 2017 - 2018 are

Chairman: Jimmy Kelly EI2GCB
Treasurer: Padraic Baynes EI9JA
Secretary: Brendan Minish EI6IZ
PRO: Dominic Curtin EI9JS
Rally Director: Padraic Baynes EI9JA
Club IRTS Rep: Gerry Cregg EI4GD
QSL Manager: Brendan Minish EI6IZ

Club Activity, Sunday 8th October

The second 40m counties contest was held this Sunday. The weather and band conditions turned out well for the day. This was a surprise as the rest of the year had been a struggle for any decent radio conditions.

Club team on the day was Jimmy EI2GCB, Padraig EI9JA and Dominic EI9JS, equipment now the mandatory Icom IC7300 connected to a doublet dipole antenna. For this contest DXCC entries were added to the score. This was to help activity if the band conditions were not favourable for local contacts. As it happened the band performed well and a good selection of contacts worked. 24 counties and 5 DXCC were worked by ourselves. After the contest was finished we operated EI44WAW for an hour and as skip was short this gave a few more local stations a chance to get WAW in the log. For more pictures please have a look at the clubs web site *ei7mre.org*.



Renew your IRTS Membership

Use this link to renew your membership for another year

www.irts.ie/renew

Payments are processed through PayPal's secure servers, and any credit card may be used

Dundalk Amateur Radio Society

Brian Whelan EI8EJB

Over the past few months, the Dundalk Amateur Radio Society EI7DAR has been active in a number of different fields, either together as a club or as individual members within the club. Some notable instances, for example, have been the recent refurbishment of the various antenna systems at the club station for HF and the higher frequency bands. Getting the newer members involved in repair and reconstruction of the antennas by getting their hands dirty, so to speak, is worth its weight in gold as compared to months of learning from books! Books don't always explain what to do when experiments do not go according to plan...!

EI2CCR, EI4FMG and EI2MOG Automatic Stations are fully operational, all located within The Wee County.

Hugh EI9KF now operates a fully active WinLink system which provides a HF email gateway for WinLink users. This is the first station of its kind in NW Europe and should hopefully provide many with a worthwhile service.

Brian EI8EJB successfully applied to be a beta tester of the new Ailunce HD1 hand-portable DMR and analogue radio. The radio is being evaluated by approximately ten amateurs from different countries before being released to market. Tests with the hardware and software continue.

In an attempt to boost on-air activity in the North East, DARS have introduced a net, dramatically named the "X-Net", to run on the 2m repeater EI2CCR on Monday nights at 8.00pm. Also to diversify and to experiment with the newer technologies, many of the DARS members now have some form of digital radio in their arsenal. DMR seems to be the most popular, with some D-STAR activity also taking place, all through various forms of hotspots (for now!)

On the HF front, despite the "alleged" poor conditions, the following is a selection of the nice DX worked using the club callsign EI0W over the past couple of months:

5T1A (Mauritania), 6Y0W (Jamaica), 9G5W (Ghana), J5T (Guinea-Bissau), VP2MDL (Montserrat), 9U4M (Burundi), 3C1L (Equatorial Guinea), VU7T (Lakshadweep Is), 3C0L (Annobon Is), VK9XI (Christmas Is), A25BE (Botswana), PY0FW (Fernando de Noronha) & V85T (Brunei)

Seamus EI3KE also had a very successful first time entry in the CQWW CW 2017 contest acquiring over 2,100 QSOs in the duration of the contest!

DARS received a lovely memorial card from the Surrey Amateur Radio Club in British Columbia regarding the passing of our friend Tony EI4DIB. Tony initiated the twinning of our two clubs having been a visitor to the Surrey club many times. In response to their kind thoughts, an open letter was sent to their club which was published in full in their very comprehensive newsletter, *The Communicator*.



By the time that you receive this edition of *Echo Ireland*, DARS will have had their Christmas in-house celebrations including among the goodies on offer will have been the now celebrated and customary EI2JD chip butties!

Season's Greetings and wishing a prosperous and QSO-filled 2018 to all!

Tipperary Amateur Radio Group

Ronan Daly EI4KN

The Annual General Meeting of the Tipperary Amateur Radio Group will be held at the Park Hotel, Clonmel on Thursday 14th December at 8pm.

This is the most important meeting of the calendar year and all group members are requested to attend. Short Wave Listeners are in particular very welcome. A number of radio related topics are up for discussion as well as plans for 2018.

More information about Tipperary Amateur Radio Group at www.ei7trg.ie

Echo Ireland - Spring 2018

Copy deadline - **15th February**Articles to *newsteam@irts.ie*Please read the recommended submission standards at the back of each edition



Report from Dave Deane EI9FBB

The EIDX Group (who brought you 9N7EI earlier this year) are delighted to announce their plans for their 2018 DXpedition to Malawi. Our requested 7Q7EI callsign is approved and our licence is already in hand.

This exciting team of EI2II, EI2JD, EI2KM, EI4BZ, EI4GZB, EI4HH, EI5GM, EI9FBB, EI9HQ, EI9HX, F5JTV, F5VHQ and MW0ZZK will operate from an excellent location right on the shores of Lake Malawi for ten days starting Saturday 24th March to Monday 2nd April 2018. They will also be taking part in the WPX SSB contest.

The team will be operational with up to five high-power stations and QRV on all bands, 160m through 10m, on CW, SSB, RTTY and the latest FT8 digital mode.

Have no doubt, that they will be looking to work as many EI / GI stations as possible!

Their website is now up and running and can be found at www.7q7ei.com

Be sure to check back regularly as the website will be updated on a regular basis.







South Dublin Radio Club members

Brendan EI4BB and Tony EI7GUB

at the ARISS demonstration in Tallaght Community School, Dublin





Wild Atlantic Way Dave O'Connor EI6AL

Into December and into the last stage of the WAW project. In December 2016 the clubs were getting their operators lined up and at midnight on New Years Eve the first calls went out. The first QSO was made by Cork EI99WAW with DL1ROT at seven seconds after midnight - no doubt a glass in one hand and the morse key in the other. Fifteen seconds later they had a QSO with EI66WAW so they weren't the only ones keen to get going. And that was the start of it - since then the logs have continued to come in.

The project had its origin in April 2015 when Alan EI8EM had an idea that the Limerick Radio Club could activate the Cliffs of Moher on the Wild Atlantic Way – Ireland's most visited natural tourist attraction with nearly 1.25 million visitors in 2015. A site survey by Alan EI8EM and Simon EI7ALB proved that it would be very difficult to operate from the cliffs - given the number of visitors, difficulties in erecting antennae and finding a suitable operating location. Half an hour spent on cups of coffee provided the inspiration for what is now the Wild Atlantic Way initiative. Why not involve all nine Wild Atlantic Way counties with each having a special call sign and a QSL card unique to each county? Ideas are the easy part -it's the implementation that is difficult. The 2016 IRTS AGM in Limerick provided the springboard to launch the initiative to a wider audience. Once support was given by IRTS Committee the hard graft of drilling down through the detail could begin.

It was an ambitions project with nine special calls needing operators to put them on air and a lot of coordination to ensure that there was no overlap. The initial idea of coordinating everything from Limerick plus dealing with QSL requests was abandoned when it was realised it would be a full time job for the club. So a coordinator was put in place for each of the counties. The system has worked well, all operators check with their coordinator before putting the call on air, the clusters are monitored and there have been no overlaps. Whilst the calls are available for any EI licensed operator to use it has been noticable that most of the activity was from within the nine WAW counties.

The QSL side was handed over to Dave EI6AL. It involved keeping a central log for each of the calls, uploading all logs to Club Log as they come in and looking after the QSLs. The logs are reasonably straightforward and full marks to the clubs in ensuring that all calls are logged and that the logs are sent in. Even this late in the project there has only been two batches of cards in from the Buro, about 2,200 of them. The majority of cards dispatched so far (over 20,000) have been requested via Club Log - every morning a list of requests arrives by email, an average of about 40 per day. There are also requests via PayPal and by post. These are all handled using Logger 32, labels printed and cards dispatched in lots of about 5 Kg to a very patient Tony EI8JK in Cork. There are also regular emails requesting the "Worked all 9" certificate, usually to be sent as a PDF by email, sometimes as a printed certificate by post. So far over 580 have gone out and the volume of requests is increasing as the year comes to an end. Also very important are the very many SWL requests that come via the buro and always get a card in reply. Another area that has to be covered are the busted calls - usually resulting from a received card that doesn't match the log, but where the log exists for the time/date. It is usually a single



character that has been incorrectly logged, the call has to be corrected and the log re-uploaded to Club Log. How this would have been handled before the days of logging software and sites like Club Log were available is a mystery. Writing over 20,000 cards by hand would not be an option!

Aside from the pure logistics of the project, a major satisfaction in dealing with the volume of incoming emails are the number of operators worldwide who have praised the EI operators involved and also the initiative itself. Most are from operators who have obviously done a bit of research on the Atlantic Way and who comment on the beauty of the west coast. Many have said they intend visiting, some have commented on visits already made. The number of visits to the QRZ.com sites for the special WAW calls tells its own story. Its an initiative that has done a major service in spreading awareness of the Wild Atlantic Way, something that unfortunately appears to have been largely lost on the tourism authorities in Ireland. The statistics speak for themselves, the calls have so far made contact with over 144,000 stations worldwide in more than 140 countries.

As we get to towards the end of the project LRC have their sights set on exceeding a total of 150,000 QSOs by year end. It should be possible. Unfortunately conditions have been generally poor through the year and there is also an element of operator fatigue setting in. However, given a final push that figure should be achieved. Regular mails arrive from operators worldwide looking for timetables or skeds for the last one or two calls they need to qualify for their "worked all 9" certificate. The more exposure the calls get the higher the percentage who will make it.

When the year is finally over it will be time to sit back and look at the results. At the moment the clubs are reasonably balanced in numbers of QSOs made with each of their calls. There are also a number of operators who stand out as having had an exceptional input to the project. LRC have decided to award a certificate to all clubs who were involved in the project, showing the number of QSOs they achieved at year-end for each call. The top club will receive a trophy. Likewise for the top three operators, each will receive a certificate showing the number of QSOs made and again the top operator will receive a trophy. It should be a fitting end to a club project that had proven to be one of the most successful ever undertaken.







Declan EI9HW and Thos EI2JD

Report by Dave Moore EI4BZ

The EIDX Group was formed in January 2016 with an aim of bringing Ireland's DXers together to form an Irish DXpedition team and to promote DX activity in Ireland. The group had a very successful first DXpedition to Nepal as 9N7EI in March this year and plan another for March 2018.

A natural progression was to hold a gathering where likeminded DXers could meet and share their experiences, and Dave EI9FBB was tasked with putting it all together.

After much research, the first EI DX gathering was announced for October 6 & 7th of October at the Aran Islands Hotel on Inis Mór (EU-006).

It was appropriately called DX Féile 2017. The callsign EJ1D was issued for the event and attendees had the opportunity to activate EU-006.

Two stations were set up in the hotel, one running into a Hex Beam and the other into low-band dipoles. Both stations used Icom 7300s with Acom 1010 amplifiers. Jeremy EI5GM and Pat EI5IX travelled over on the early boat on Friday morning to set up the stations and remained until the last boat on the Sunday for the take down. They were assisted by other early arrivals Thos EI2JD and Mark EI6JK and XYL Ingrid.

While the event did not officially start until Saturday morning, most attendees travelled over on the evening ferry from Ros a' Mhíl on Friday evening and enjoyed a very sociable evening getting to know one another in the restaurant and bar.

Activities began on schedule on Saturday morning at 1130 with registration and the official opening. The first presentation was from Jeremy EI5GM who officially launched the next EI DX Group DXpedition to Malawi in the spring of 2018.

Cezar VE3LYC made the long trip from Ontario, Canada and presented an interesting talk on his many extreme IOTA activations to inaccessible islands around the globe. Cezar is Deputy Manager of the IOTA programme.

Nigel G3TXF, another well known DXer and expeditioner,



Guest Speakers: Cezar VE3LYC; Declan EI6FR; Kenneth LA7GIA; Jeremy EI5GM; Nigel G3TXF; Dave EI9FBB



SBB Pile-up joint winners: Thos EI2JD, Jeremy EI5GM, Pat EI5IX



Nigel G3TXF giving his presentation

gave a presentation entitled "One Million QSOs & counting" and spoke of his massive QSL collection, all filed in a purpose-built storeroom. His QSO total as verified on LOTW stands well over the million mark and still climbing. Following lunch, attendees went straight into a CW pile-up challenge with the top spot being shared by G3TXF and EI4BZ.

This was followed by another talk from Jeremy EI5GM, this time on the planned trip to activate another never-activated island AF-111, Baiyah Island in Liberia.

Declan EI6FR gave a detailed presentation on his many DXpeditions starting with ZL9CI in 1999 to his latest as 9N7EI with the EI DX Group earlier this year. His talk was entitled "From sea-level Saltees to Himalayan Heights"

The SSB Pileup challenge was keenly contested and resulted in a three-way tie between EI2JD, EI5IX and EI5GM

Kenneth LA7GIA, a well known solo DXpeditioner spoke of his six solo trips to African counties Malawi, Comoros, Equatorial Guinea, Congo and Central African Republic and outlined the difficulties he encountered operating from the African continent.

The final presentation was made by Cezar VE3LYC where he looked at various aspects of carrying out IOTA expeditions.

The day's programme concluded with the EIDX Group presentation and a free raffle for many excellent prizes.

Dinner was served at 2000 and an excellent meal was followed by entertainment from a traditional Irish music band. This was particularly enjoyed by our overseas visitors.

Six DXCC entities were represented on Inis Mór – EI, GM, G, F, LA & VE

The EI DX Group would like to thank Yaesu UK, Kenwood UK and DX World who sponsored our prizes.

The Aran Islands Hotel proved to be an ideal venue and their co-operation in setting up two stations with good aerials was much appreciated.

Many tributes were paid to event organiser Dave Deane EI9FBB who provided everyone with a very entertaining and interesting weekend complete with souvenir badge, pens, mugs etc.

Next year's event is booked for September 14/15th and no doubt places will be in big demand, so book early.



Alain F5JTV; Alain F8FUA/EI2KM; John F5VHQ/OE1TGL











HF Happenings Mark Bannon EI6HPB

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Hello and welcome again to HF Happenings. It is truly amazing how fast a year can go by when your having fun (especially on the airwaves). Winter has suddenly appeared out of nowhere and the days are getting shorter. It is true that band conditions haven't been wonderful as of late and there havent been a massive number of big DXpeditions or activations recently. However this hasn't prevented many of us from working some personally satisfying DX stations from Ireland.

Since I last wrote HF Happenings not a lot has occurred on this end I suppose. For the past few weeks for example I have been busy as a bee just fixing things up in terms of antennas after the visit of Storm Brian to our shores. Luckily I was able to take most of them down in advance of its arrival, however like most things in life you cannot be one hundred percent prepared and you will always find a few things needing repair due to such natural phenomena.

Generally I was very lucky with my antennas during this storm. I know that a lot of my fellow hams suffered a great deal of damage to expensive Hexbeams and other setups. In my case it was just a few snapped end connectors and feedlines which took a bit of a battering.

Finally I have seen the light and now realise the advantage/convenience of wind-up, tilt-over masts. This is something I should really consider investing in a lot more now into the future. Up until now most of my antenna masts were fixed in postion and thus very difficult to take down or put up due to bad weather forecasts. I now know exactly what my next radio project has to be.

In addition to this I am in the middle of getting my house roof repaired so down came a number of antennas due to that reason also.

Another factor affecting my HF activity was my involvement in Emergency Communications during recent months and tutoring new hams into the hobby. Add to this some other stuff such as upgrades to my shack and trying out new modes it all ate into some of my HF DXing planned time. So for the purposes of this months column I have enlisted the assistance of the logbook of our good friend Hugh EI2HI. All QSOs reported on in this column are credit to him.

Recent DX

For all of the DX contacts on the 80 m, 40m and 20m bands listed below, Hugh used a Kenwood TS480 running a maximum of 100 Watts into a G5RV antenna. He used an Antron 99 vertical antenna for 10m and 12m bands. With the use of a manual ATU he was able to use the Antron 99 antenna also on 15m and 17 m. For the 30m band he used a half-wave dipole.

VU7T

Depending on who you talk to the location of this contact is called something slightly different in each case. The reason for this is because of historical name chances which occurred in its past. It used to be referred to as either Laccadive, Minicoy or even the Aminidivi Islands however now its called Lakshadweep. Worked on 30m using CW, Lakshadweep is a remarkable DX location. The most recent name for it refers to how many islands appear to be in the local region "one hundred thousand islands". If we are talking about tiny land masses then this certainly is a location worth considering for rare DX's. The islands form the smallest Union Territory of India. In fact the total surface area of all of the islands in Lakshadweep combined is just thirty two square kilometres which come to about only twelve square miles in fact when you do the conversion calculations. Its almost hard to believe that the region around this forms a single Indian district containing ten administrative subdivisions. Even harder to believe is the fact that ten of the islands are inhabited and the population is about sixty five thousand people. Coconut fibre extraction and the production of fibre products makes up the main part of their economy. They have five coir fibre factories involved in this as well as five production demonstration centres and even another seven fibre curling units. Fishing is a very large part of their income and mainly this is done in a very traditional manner involving drying the fish out in the sun after cooking and smoking for example. If anyone is tempted to operate a little DXpedition of their own, I think this sounds like a nice little picturesque location to travel to for a little radio holiday. I dont think any XYL would mind travelling for a DXpedition if you suggested one of these beautiful islands with their crystal clean light blue waters surrounding them. It just proves that we don't have to venture to cold, harsh climates to do some DXing any more now that we know this little gem exists out there in the world.

3C0L

Annobon Island is a good one to add to any logbook. Hugh successfully worked Yuris (YL2GM) and Kaspars (YL3AIW) three times from this location in late October on different bands using CW namely 12m, 30m and 10m.

PZ1EI

Now for a little change in terms of location. Moving on to South America this time Hugh focused his attention on the nation of Suriname using 10m believe it or not with SSB. This makes me wonder why my own 10m antenna is not performing like this, I heard him on the airwaves myself a few times but I think I need to talk to Hugh and get some tips and hints later about how I can improve my setup a bit better. When I discovered Hugh had made contact with Suriname I wondered if the operator happened to be located in the capital city Paramaribo or somewhere out in the countryside. Yes it

turns out the operator is Ramon Tai from Paramaribo who is no doubt well known to a few of the readers of this article. Ramon due to his brilliant DX location is a very busy ham in terms of the number of QSOs he receives and I bet if you look through your logs a few of you may have him in it already without realising.

E44WE

The holy region of Palestine was worked by Hugh using SSB on both 10m and 12m withing his Antron 99 antenna.

VK9CZ (Cocos Keeling) 12m ssb, 15m ssb, 17m cw + ssb Both Chris GM3WOJ and Keith GM4YXI operated a DXpedition using Spiderbeam antennas from 23rd Oct to 7th Nov on the Cocos-Keeling Islands. Grid reference was NH87jt. They were worked on three bands using SSB 12m, 15m and 17m. In addition to this Hugh made contact with the DXpetition using CW on 17m. During the DXing both Chris and Keith decided to operate a bit old school in terms of their antenna setups, which worked very well in their favour in terms of gathering a large number of QSOs for the logbook. All of their antennas were perfectly resonant antennas for best results. They used absolutely no antenna tuning units, traps, coils or linear loading devices at all during the whole DXpedition. The plan was that they wanted the antennas to be as efficient as they could make them and also as close to the ocean as possible. Certainly the plan worked out a total treat for them. We wish them every success with their next planned DXpedition.

A71A

The Qatar Amateur Radio Society in Doha, 40m using SSB, was a fine clear contact made recently by Hugh.

S01WS

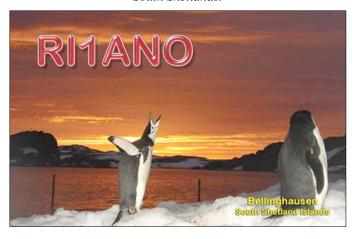
Another interesting 1,780 mile QSO on 10m CW was obtained by Hugh with the Sahrawi Amateur Radio Club located in Tifariti in Western Sahara in late October. Tifariti is an oasis town which in recent history found itself in what is referred to as the "Liberated Territories" or "the Buffer Zone".

PJ2BB

I am not sure if QSO this is a bigger achievement for Hugh or for Bart in Curacao within the West Indies. I think credit has to go equally to both operators for this one. Operating on 40m SSB Bert was using a quarter wave vertical. That would be the simple way of describing the setup, however this was not your standard QSO by far. Bert makes his own equipment and we are talking about some very good quality builds at that. From his antenna to his own professional high quality homebrew somewhat unconventional S-match tuning unit, Bert has an incredible setup at his QTH. Even his linear amplifier which was constructed inside old microwave-ovencabinet is an outstanding work of art. There is no doubt at all that Bart is a skilled home-brewer and operator, that's for sure. I would have really enjoyed being a fly on the wall during this QSO.



Bellingshausen station, King George Island South Shetlands.



RI1ANO

Alex (UA10JL) operating under RL1ANO enjoyed the pleasure of a QSO with Hugh in early November from Bellingshausen station, King George Island in the South Shetlands. Contact was established between the two operators on numerous occasions across various bands including CW on 15m, 17m, 20m and 30m. SSB contact was achieved also on 20m band.

EL2BE

Hugh was fortunate enough to make contact with fellow Irish operator David Deane who was operating from Monrovia Liberia on SSB on 12m. Well done to both of you.

9U4M

Mediterraneo DX Club International Team were worked during the MDXC DXpedition 2017 in Burundi by Hugh on SSB and CW on both 20m and 17m, with CW only on 15m.

VP2MDL

In the Catalan language Montserrat means "serrated mountain" and this is a perfect description of the location. QSO's were had with Montserrat during the past few months on four bands using CW namely 15m, 17m, 30m and 80m. However an SSB QSO was also achieved on 17m.

3C1L

Equatorial Guinea is always a good location for anyone wanting to get a new location into their logs if they have not got it already. It may not be considered any more as perhaps

the most rare of locations in the world to log however that doesn't matter since it is the challenge enjoyed in the process of obtaining contact with some locations which is the most fun I believe. Equatorial Guinea was worked by Hugh on 10m using CW, 15m both CW and SSB voice, 17m CW, 20m CW and SSB, 30m CW and also 40m CW

3DA0TM

A very rare contact was obtained by Hugh on 14MHz using SSB with Andy Cory in Mbabane, Swaziland. Andy is only one of four operators permanently based in the landlocked African nation of Swaziland and thus they have no bureau facilities. This truly is a unique and marvellous location to make contact with. Swaziland is a very interesting nation, its one of the smallest countries in the whole of Africa; yet despite this, its split up into four administrative regions and its topography and weather is extremely diverse for such a small country, ranging from cold mountainous terrain to lowland which is dry and hot.

J5T

In mid-November Hugh made contact on four bands with Silvano Borsa in the Republic of Guinea Bissau in West Africa. Guinea-Bissau is a nation bordered by Senegal to the north and Guinea both in the east and south. On its western side is the Atlantic Ocean. In terms of land mass the country is a bit larger in size than Taiwan or Belgium. Their highest point is about 300 metres (slightly more than 980 ft). The first contact made by Hugh with Guinea Bissau was on 12m using CW. The other three contacts he made with J5T were using SSB on 15m, 17m and 20m.

3XY3D

A CW contact was achieved on the 30m band with 3XY3D located on the Los Islands in Guinea.

VP2MDL

From the Irish "Emerald Isle" to the island a lot of people refer to as the "Emerald Isle of the Caribbean", contact was made on two bands. 12m CW and 20m SSB. A DXpedition was organised by Sigi (DL7DF) and some of his friends on beautiful Gingerbread Hill located on Montserrat Island with its black-sand beaches, coral reefs, cliffs and shoreline caves. Their DX QTH was perched very nicely overlooking the Caribbean Sea in the distance and resulted in a large number of QSOs for them.

J₅T

In late November QSO was obtained again with J5T Guinea Bissau using the SSB on 20m, 15m, 12m, 10m and CW on 30m, 15m and 17m.

TO2SP

Polish DXpedition 2017 took place on St Barthélemy Island (St Barts), within a stones throw (by radio waves) of VP2MDL on Montserrat Island listed above. Hugh managed

to work the Polish team using CW on 30m, 17m and 20m. He also achieved QSOs via SSB on 17m and 15m.

8J1RL (Eagle Ongle Island, Antarctica) 30m CW

An impressive contact was one which Hugh made Antarctica. 8J1RL is a Japan Amateur Radio League (JARL) station which is operated by members of JARE (Japanese Antarctica Research Expedition). It is located at 69 degrees south and 39.59 east (grid location KC90tx) in the large bay of Lützow-Holm which is about 220 kilometres wide. The station was originally established all the way back in 1957 and each February the operators change over. I personally am looking forward to having a QSO in the future with Eagle Ongle if I get the chance. All I can say is very well done Hugh.

Upcoming DX

Bouvet Island

A major DXpedition to Bouvet Island is expected to commence operations in late January 2018 using the call sign 3YØZ. Bouvet, which is in the South Atlantic, is considered to be the most remote island in the world and is currently number two on the DXCC most wanted list. The DXpedition will operate on all HF bands and will also operate EME on 6m and 2m.

The Holy land DX Group

A special event has been decided upon to mark Shivta National Park in Israel becoming a UNESCO World Heritage Site. They will operate from 8am 22nd December to noon on 24th December. The callsign 4X0XMAS will be used for running three stations for CW and SSB. (For details, please visit QRZ.com and search for 4X9XMAS). QSL via LoTW and eQSL.

Mozambique

Members of the Lion DX Team OT8T will activate as C8T from Mozambique between 2nd and 15th May 2018. Activity will take place from 160m all the way through to 6m using CW, RTTY, SSB and a few other modes. Permission has been granted to them to use 60m also. They intend to try some 2m moon bounce while there. For further information closer to the event please visit

https://mozambique2018.wordpress.com

Mauritania

Fawaz, A92AA, is currently active as 5T1A from the capital city Nouakchott in Mauritania until December 20th. QSL via A92AA.

St. Paul Island Dxpedition

The St. Paul Island DXpedition will be taking place in August 2018. Up-to-date details of the DXpedition will be posted on the website www.cy9c.com

Rotuma Island

Rotuma Island will be activated from 23rd February through to 16th March 2018. The team will use two stations, a

Spiderbeam and vertical antennas. QSL via DK2AMM (OQRS, direct, by the Bureau or LoTW). For additional information *http://www.rotuma2018.de*

Taboga Island

Stefan HP1DRK, Massimo HP1MAC, Ricardo HP1RIS and Gianni HP1YLS will be QRV as H91IT between 6th and the 9th January 2018 from Taboga Island on 40 through to 10m using CW and SSB. QSL via HP1RCP.

Luzon Island

DU3/F4EBK station will be operated by Chris F4EBK from Baliuag City, Bulacan Province, Luzon Island, Philippines, in February 2018. Activity will be on the 10m, 15m and 20m bands using a rotating dipole with one hundred or more watts.

Taumako Island

It has been announced that Cezar VE3LYC will be active for about five days from Taumako Island in early May 2018.

Lomé

John N9MDH will be QRV as 5V1JE from Lomé until the end of May 2018, more or less. Activity be on 80-10m using SSB and digimodes. QSL via eQSL or LoTW.

That concludes this month's column of HF Happenings. As always I welcome your contributions, comments and log extracts for future editions of this column. You can email me at *ei6hpb@winlink.org*

Go raibh maith agaibh agus slán go fóill Mark EI6HPB



IARU Matters: WRC-19 Dave Court EI3IO

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Preparations for WRC-19

Significant progress was made in preparing for the World Radiocommunication Conference in 2019 (WRC-19) at a two week meeting at the International Telecommunication Union (ITU) in Geneva in early November. The team representing IARU in Working Party (WP) 5A of the ITU Radiocommunication Sector consisted of amateurs from Australia, Brazil, Canada, Germany, Ireland (EI3IO), Japan, Norway, the Netherlands, United Kingdom and the United States

For IARU the main focus was on the WRC-19 agenda item which will consider a frequency allocation for the amateur service in Region 1 from 50 to 54 MHz similar to Regions 2 and 3. The current - mainly secondary - allocation 50-52 MHz in most European countries is only a regional CEPT agreement. During the meeting input documents from IARU, France, the Russian Federation and Switzerland were considered with the following intermediate results:

- A rough consensus was achieved on the text which will provide the technical basis for discussions concerning the access to 50-54 MHz for the amateur service in Region 1.
- A method for calculating the spectrum needs of the amateur service in 50-54 MHz was proposed by IARU and has been accepted by some administrations. More information to justify the requested bandwidth however will be required.
- For sharing studies particularly in relation to the land mobile service and radiolocation applications in 50-54 MHz, a mutually agreed propagation model remains to be determined.
- No major objections to sharing with analogue television broadcasting in 50-54 MHz in Region 1 remain, provided that a time limited field strength limit is applied.

On the 50 MHz Region 1 WRC-19 agenda item, CITEL the regional telecommunications organisation for the Americas met in November with input documents from Brazil and Mexico. Brazil supports an allocation to the amateur service in Region 1 provided there are no adverse consequences for the amateur service in Region 2. Additionally the issue should not impact the existing allocation to the amateur service in 50–54 MHz in Region 2, nor should it subject Region 2 to any changed procedural or regulatory provisions.

In addition to an amateur allocation in Region 1 at 50 MHz other key issues for the amateur service at WRC-19 include securing protection for amateur service primary allocations at 24 GHz and 47 GHz and minimising possible interference arising from Wireless Power Transmission (WPT) for the charging of electric vehicles.

In early December discussions continued at the ITU in Geneva on WPT in WP1A and WP1B. Later in the month WPT will be debated at a CEPT Project Team which will meet in Dublin.

The motor industry and Transport Ministries around the World are trying to reduce unwanted pollutants from vehicles powered by hydrocarbon fuels, whereas HF radio spectrum users are extremely concerned by the unwanted emissions which might be generated by battery charging apparatus, especially those employing WPT techniques.

The next WRC-19 preparatory meeting considering the 50 MHz Region 1 amateur frequency allocation and the WPT issue will take place in Norway in February 2018. IARU will be present to ensure that amateur radio interests are considered alongside other spectrum interests.



working for the future of amateur radio



A Snapshot of HF conditions Don Brennan EI6IL

ei6il1970@gmail.com

Hi Folks and welcome to the shack of EI6IL. Now that the winter months are upon us I have spent a little more time dipping in and out of the HF bands with varied results. The summer was spent enjoying outdoor activities including antenna maintenance for winter readiness. I also homebrewed an Inverted V fan dipole covering the CW portion of 30/40 and 80m. I do not employ any antenna tuner in my shack and believe if possible a resonant dipole can achieve great DX. To work DX it's not as easy as switching on the wireless for a few minutes finding what you think is a dead band and throwing in the towel. Pride of place in my shack is an MFJ-890 DX Beacon monitor used in parallel with various HF rigs to receive the NCDXF/IARU International Beacons. I often switch on and spin the VFO across the bands to hear little or no stations but find that when I leave the rig on a beacon frequency I can hear the far reaches of the globe. Its worthwhile sending out that CQ call on what you may think is an empty band. There are a number of online NCDXF beacon monitors free of charge on the internet.

My main station consists of a 3-element 6-40m SteppIR Yagi on a motorised telescopic mast of max height 23m with a nested height of 7m. Below the SteppIR is a 2-element loaded beam for 40 & 30m.

However to get a good idea of band conditions and the run of

Premium mode

1 hour 3 hours 6 hours 1 day 1 week

30 days Menu Help

Spots: El6IL - 14 MHz - 200mW

VE6JY from El6IL
On 14 MHz at 200mW
Distance: 6280 km
SNR: -23

Fig. 1 Homebrew Hexbeam 3m off the ground

propagation I decided to fire up my WSPRlite beacon on 20m with my homebrew Hexbeam at a miserable height of 3m. The idea here is to show what's available on the bands from a modest antenna in a compromised location. For those who are not familiar with the WSPRlite it is basically a special test transmitter that sends a WSPR signal of 200mW and is received by a worldwide network of receiving stations. The great advantage of the WSPRlite is it doesn't tie up a computer or shack radio and can be powered with a simple USB phone charger. No time to go into the finer details of the WSPRlite but you can find more information on the following website https://www.sotabeams.co.uk/wsprlite-classic

Fig. 1 below opposite is a screenshot of the stations that received my 200mW WSPR signal on the 20m band from Oct 20th – Nov 20th 2017. As you can see the max distance I was heard from was VE6JY a mere 6280km with a signal to noise level of -23dbm. I rotated the antenna every few days to get an even picture of propagation.

Fig. 2 below is a screenshot of the same time period using my 3-element SteppIR at various heights depending on wind conditions. My signal was heard far and wide across the globe.

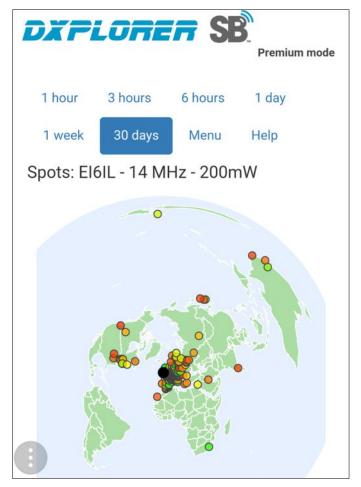


Fig. 2 Three-element SteppIR 8-22m off the ground

Winter 2017 Echo Ireland 17

Log extracts as follows.

10m: Generally a quiet band but with some surprising results sometimes open into the early hours. 5T50K, RI1ANO, XT2AW, 3C0L, 9Y4/DL1QQ, J5T

12m: 5T50K, RI1ANO, 3C0L, FM5FJ, 9Y4/DL1QQ, 3C1L, J5T, EL2BB, Z21MH

15m: ZD7DL, 5T50K, A25BI, AT7M, HZ87ND, ST2MH, S9YY, A5A, JR5JAQ/6, VK9XI, R11F, VU7T, V55A, 3C0L, 3XY3D/P, 9Y4D, 4S7KLG, R11ANC, 6W1SU, VK9CZ, 3C1L, E44WE, VK9CZ, 9U4M, VR2/KC0W, VP2MDL, J5T, 4U24OCT,TO2SP

17m: 5T50K (Rtty), FP/G7VJR, A25BE, S01A, PV8ADI, PY0FW, AT7M, T6/IZ1CCK, A5A, HZ87ND, EI22WAW,V26K, R11F, AH6V, HK0RMR, VU7T, 3C0L, ZD7BR, XW4XR, EI44WAW, 4S7AYG, RA0AF, 3XY4D, 3C1L, KH7XS, VK9CZ, VP2MDL, 9U4M, TO2SP, 5K0T, J5T

20m: XK150YUKON, ZG2BU, EI77WAW, 8P50B, V85T, PJ4DX, PY4NY, CX3AAU, A25BE, PM4IOTA, Z21MH, 5T50K, FP/DK2AB, VY2WW, PY0FW, FR/F8FUA (Alain AKA EI2KM), VE7RAC, AL7KC, KC4AAA, ZV127SG, PY6TV,WB3YVE, P29LL, 7V9A, 5T50K, AT7M, A5A, S9CT, RI1ANC, RI1F, EJ1D, T88WM, HF0ARC, ZD7BR, 3C0L, 3C1L, W1AW/6, 6Y4F, KH7XS, AH0K, 8J60JARE, VY0RAC, PZ5K, EL2BB, VK9CZ, VK9/MOVFC, VK9MA, 9U4M, J5T, 3XY3D, TO2SP, DU1/SP5APW, VQ917JC, TO2SP, 5K1B

30m: PJ4/PA3BWK, A25BE, 5T50K, FR/F8FUA, PY0FW, VK9XI, RI1F, JT1BV, VU7T,3C0L, E44WE, VK9CZ, 9Q6BB, VU7T, 3C0L, 4S7AYG, S79KB, 3C1L, E27EK, TO2SP, 5N7Q, 955W, VK9MA, 9U4M, 3C1L, VP2MDL

40m: OH0Z, JH1HDT, 4K6AG, A25BE, A25BI, 5T50K, K4HX, A5A, 4U1ITU, OX3XR, R11F, EJ1D, VK9XI, BH9BCK, XQ6CFX, VK9CI, R11ANO, VU7T, EI0IRTS, S21ZAS, A71A, 4S7KLG, JT5DX, VK9CZ, VE9RAC, 3C1L, WL7E, NY2PO, 9U4M, VP2MDL, EY8MM, J5T, EP2MLA

80m: EJ1D, 5Q4X, EI88WAW, HF0HERTZ, VP2MDL, 3C1L, 9U4M, J5T, TO2SP

160m: Very quiet start to the season for me, using an Inv L with a max vertical height of 18m and remainder sloping to the ground. 32 radials now disappeared under the sod. Not ideal but got over the 100 DXCCs with this configuration. Didn't get a chance to put up my K9AY receive antenna yet which will improve reception and null out the horrendous noise well known to 160 (the most challenging band for me)

By the way, 92% of my QSOs are with the old reliable and enjoyable CW mode. 52% of the QSOs using barefoot approx. 200 watts.

Best contact over the last few months was with KH7XS on the ground-mounted Hexbeam using 100 watts CW.

Get on the radio folks, ignore the scientific propagation predictions and values somewhat!

Radio is black magic!

A Salutary Tale

Brendan Rooney EI7CS

When I was a young short-wave listener in the 1960's there was a popular hit of the day called 'I can hear the grass grow' by 'The Move'. In those glorious days of my youth I was working in the TV trade and I could hear television sets using the old 405-line system rattling the line output transformer at 10,125Hz, indeed when the 625-line system started I could even hear the 15,625Hz time-base whistling like a boiling kettle, you could say I could hear the grass grow. But in the words of Bob Dylan, from the same era, 'The times they are or were a changing'.

Things rested so, until recently, when I was out walking in the countryside with the XYL and she said to me 'what's that bird I hear singing over in you tree', Aech, what bird says I. In the olden days local people would use the Irish word "Aeach" or 'Eist' if they were a little hard of hearing, I suppose it was the equivalent to the on-air request, QRZ. In the immortal words of the ham calling 7CS 'you must hear me', of course 7CS may hear him but then again he may not, you could call this a type of 'selective' hearing loss.

Anyway, this incident got me thinking about the quality and quantity of 7CS's hearing, so I quickly QSY'd to the internet where I found a very useful website which would generate any

audible frequency under the sun called "onlinetonegenerator". In true Experimenter fashion and in the comfort of my own home, I carried out my very own hearing test, at zero cost of course. This site will generate any audio frequency and messing with it I could hear tones from as low as the rumble of an earthquake right up to the tweet of a Finch, all coming in at 5 and 9. Further tests carried out on higher audio frequencies would indicate that my hearing was as not good as it once was, by 10kHz you could say that my hearing level had fallen off a cliff. I then invited into my shack some Guinea Pigs, namely the XYL and a not so Junior op, for their very own personal hearing test. They had no trouble hearing the 8, 9, 10 and indeed 12kHz audio tones. By now I was an 'expert in audiology' and could start a business. (A word of warning here, loud audio tones may harm your hearing).

After this test it was now apparent that my hearing was not what it used to be in the days of my youth. I have a SDR which has a receive audio passband equaliser calibrated in dB and after a bit of careful adjustment and manipulation I was able to compensate for my hearing loss, at no extra cost of course. So hopefully, in the future, you won't be hearing 7CS on the air saying 'can you repeat your name again OM as I missed it due to a crash of QRM' or whatever. By the way, I think I can, once again, hear the grass growing, oh for those wasted days of my youth.

[Warning: this is no substitute for a proper hearing test]



IRTS Publications Library: Update Joe Ryan EI7GY jo

joe.ei7gy@gmail.com

Echo Ireland readers will be aware of the IRTS Publications library *irts.ie/library* which holds PDFs of some of the society's newsletters published up to the year 2000. In my last update on the library in the Summer edition of Echo Ireland, I mentioned that for the 1950s, the library only had a call listing but no newsletters. Well, that gap has now been partly filled thanks to Gerry Lawlor EI9FV, who remembered that he had kept aside a few copies of 1959 newsletters as they contained modification notes he was interested in for a HRO receiver.

The modification notes referred to the HRO-MX and HRO-5 receivers; the HRO range were produced in large numbers by the National Radio Company (USA) from the mid-1930s to the mid-1960s. Although designed originally for commercial and military use, they became very popular with radio amateurs because, with plug-in coils, they covered all the HF bands. The modification notes for these receivers, written by Bryan Fogerty EI6X (SK) were aimed at updating the valves to more modern types, with consequential circuit updates, some other circuit improvements and a reminder to replace paper condensers (capacitors) that become less effective with age. The notes were spread over three issues, covering the RF, IF and AF stages, respectively.

A constant theme in the 1959 newsletters – and indeed in the newsletters for subsequent years right up to date – is the threat to the amateur bands caused by commercial and government interests seeking to take significant slices of spectrum away from radio amateurs. A major ITU conference was taking place in Geneva during the period covered by these newsletters, and they report on some fairly frightening curtailment proposals being put forward by various governments in relation to the main amateur HF bands. (Note: in the event, the outcome from this conference for radio amateurs was relatively benign.)



Another theme from the 1959 newsletters, that seems all to familiar (to me anyway), is a lament about the low participation in NFD [CW contest], resulting in it being "... but a poor shadow of its former self". Aside from contesting, however, the 1959 newsletters are upbeat about activities by EI amateurs, with plenty of comments about rig and antenna improvements as well as DX worked.

I had expected to read more about "radio experimenters" which I have been told is how we described ourselves until recently. However, reading these newsletters, we seemed in 1959 to be happy to refer to ourselves as "radio amateurs" and "hams", even though the licences held by IRTS members would have been experimenter licences. Perhaps the difference between "experimenter" and "amateur" is not so great?

There are still plenty of empty shelves in our online library; if you can help fill them, please contact Séamus EI8BP or Joe EI7GY.

Photo of a HRO-MX receiver provided by Ernest Erb HB9RXQ of Radiomuseum *www.radiomuseum.org* (photo was provided to Radiomuseum by Marc McIntyre).



Delegates to the IARU Region One Conference 2017 in Landshut, Germany



Excerpts from the HX files Pat Fitzpatrick EI2HX - Excerpt 041

Hello and welcome to Xtract 041 of the HX files. This edition of the HX Files features another portable unit that is more or less finished and still undergoing some trials.

Pressie time

I recently purchased a Yaesu FT817 and an LDG817 Auto ATU, (a combination of a birthday and early Christmas present). The future plan is to get a couple of transverters to use on the likes of 23cm and 3cm for some SSB work, but for now some experiments will be done on the bands the radio comes with (top band to 70 cm). They are a very popular radio so rather than do a review of it, you can, if you are not familiar with the radio, have a look on the web.

But enough of the future plans, back to the present time. The idea in this project is having the radio, ATU and who knows what in the one container and various aerials and bits and bobs in a bag but things could change as the gear was used and could be streamlined or added to as needed.

My first thought for an enclosure for the project was one of those Pelican cases and at the time there were a couple that looked like a good fit but some measurement would be made as the cases are a bit on the expensive side. Not wanting to bring the radio, ATU, battery and speaker up to the shop a piece of cardboard was marked and cut with placement of the parts drawn on the cardboard to a size that would give me enough room and a bit to spare. So armed with the piece of cardboard and a tape measure to check the depth of the boxes off I went to the store. After explaining to a member of staff what I was hoping to do with a case, with his permission off I went to do some measurements. After a few funny looks from other shoppers and the realization that the nearest available size (which was slightly larger than the size needed to do the job) was more than the price of the ATU. Not wanting to sell the ATU to fund the case, a hasty exit from the store was made with me saying I forgot to make a measurement an would return.

Sheds (you can't beat them).

Not wanting to just screw or stick everything on to a bench or a small table (that's so last issue), some survival gear was put on and off I went to explore the sheds. After some time digging the case you see in the photos was found.

As they say "hindsight is twenty-twenty" and after building this project in that particular case, and if I am not *too* bold Santa and the Christmas / New Year sales might help with one of those Pelican cases.

The project

The project itself was not one of my hardest to do and was a simple one as for the time being the radio would only be used on

the HF, V/UHF bands. The items visible would be the radio, ATU and an extension speaker. A battery and various wires would be under the board that everything was attached to. The board used is a piece of an old shop sign made from 5mm plastic and cuts very easily; the board is mounted at an angle to help in the use of the equipment. The use of a glue gun and some offcuts were used to get an angle I was happy with and after the mock-up some brackets were made and glued into place, as I did not want to drill through the case and if it happened to rain when out and about and the case could be almost closed.

In Photo 1 you can see the parts to be used in the building of the project. The Yaesu FT817 has its own internal battery pack installed and can be recharged/powered via the DC socket; the LDG AATU is connected to the radio via a short lead with small din plugs a each end; the ATU is powered by 4 AA batteries. As there is no way to charge the batteries installed you just replace them. The manufacturer states that you should get a least a year out a set of batteries as they are only in use during the tuning process. The external speaker is a BHI speaker and in the short time I have used the radio the speaker helps with some of the audio; the speaker uses 12v DC to power its self. So you would have to be careful when out with the setup as you could run out of DC quickly enough if you were not watching what you were doing.

In Photo 2 you can see the setup. The equipment was attached to the board via some sticky back Velcro. The only drilling done was to make some holes for the various leads and cables. One of the openings would be filed square to accommodate some Anderson power poles (seen in Photo 3), for the various items that needed some 12v DC from the 7amp gel battery underneath, and of course to charge the battery. The reason for the openings was that the cables from the speaker and radio were pushed back under the top panel as was the connecting lead from the radio to the ATU to help tidy it up and keep the leads and cables out of harm's way.

On the bottom right of Photo 2 you can see the kill switch that isolates the gel battery when you are on the move to your portable location.

It more than an understatement to say that I am happy with what the radio can do and with what it will do for me in the New Year.

That's it for this issue of the HX Files and indeed for the year.

I would like to wish you all a Very Happy Christmas and a prosperous New Year and I hope to see you at the various rallies in 2018.

73 and may all your signals be 599. Pat.







Photo 1 Photo 2 Photo 3

20 Echo Ireland Winter 2017



Join me for the OSCARS! Keith Crittenden EI5KJ

keithcrittenden[at]gliderireland.net

Fancy joining me at the Oscars in 2018?

But don't get too excited, I'm not talking about meeting Hollywood "A" list Celebs. I'm talking about radio operation via Orbiting Satellites Carrying Amateur Radio. (OSCAR)

Why? Because they offer totally predictable and (almost) 100% reliable communication. No need to concern yourself with the momentary vagaries of the troposphere, ionosphere, sporadic E or any other types of natural propagation.

Contrary to popular belief, you don't need to be super brainy, super rich, or have lots of complex and sophisticated remotely controlled antenna systems. You don't need high power levels either. In fact, using too much power can produce as much of a problem as not using enough. Depending on the antenna you're using 3 watts is quite sufficient for close passes, and 7 watts into a 3 to 6 element antenna would be the maximum you would need to work into the farthest reaches of Siberia, or the Rocky Mountains of North America, the Yangtze river, or the Amazon basin of South America.

You probably won't need to procure any new equipment either. Most experienced radio amateurs are likely to already own sufficient equipment to enable them to establish at least basic radio communication through these "Repeaters in the Sky". At the moment there are well over a dozen, and 90% are in so called Polar, or near-Polar, orbits which allow amateurs in Ireland the chance to use each of them on four or five occasions (on average) every 24 hours. By the way if you've ever wondered how to get away from the crowded HF bands during contests, then satellite operation is the answer. There's no contest operating in space.

One thing you will need however is the desire to experiment a little. The will to 'have a go', and not to give up if you don't succeed on your first few attempts. Experimentation is the name of the game!

I've just been experimenting by using indoor homebrew antennas to communicate via close-passing satellites, with a 'moderate' degree of success. (Even if I say so myself!)

So what modes can be used with these "Birds"? Well, there's FM, SSB, CW, PSK31, and from the International Space Station there's also SSTV, APRS Packet radio as well as an FM repeater and the chance of talking directly to an astronaut (if they're not too busy working). You just never know who is going to answer that CQ call into space!

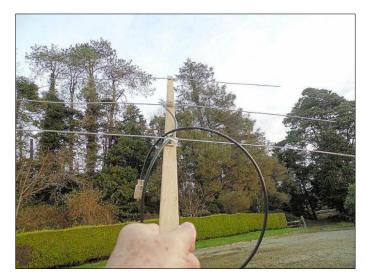
If you've tried most other aspects of Ham radio and are looking for something to re-ignite that 'sparkle' of excitement, or pick up the baton of a challenge (without breaking the bank), then OSCARs are certainly worth a consideration. The easiest satellites to use are those carrying non-linear transponders, the so-called FM satellites. Satellites with linear transponders are a little trickier to work although in the next issue of Echo Ireland we'll be looking at how to do just that with both types.

In the meantime, to whet your appetite, here are some web sites you can visit which will tell you more about how to "Chase the Birds" along with a couple of snaps of some of the very basic equipment I've used to successfully listen to, and operate through Orbiting Satellites Carrying Amateur Radio.

https://amsat-uk.org/about/ https://www.amsat.org/



To simply listen to a satellite this is all that's needed. A €20 handheld with its supplied 'Rubber Duck' antenna. With the squelch control off (or 'open') and held so the antenna is horizontal, you will hear FM transmissions from space providing the satellite is more than 60 degrees above the horizon and you have a clear view of the portion of the sky where the satellite is. The higher the satellite is in the sky, the closer it is to you. So a bird that is at 90 degrees to your location (right over head) is the closest it can be.



Rubber Duck antennas can be used to receive signals from satellites, but to get signals up to the bird (the uplink) I found I benefited greatly from using a little bit of antenna gain. This precision built (not!) and very expensive antenna (which actually cost less than a fiver using old coat hangers and a bit of wood) does the job on Tx and improves Rx as a bonus!



IARU General Conference 2017 Gerry Gervin EI8CC

The Twenty-Fourth General Conference of IARU Region One was held at the Sparkassenakademie Bayern in Landshut, Germany from 16th to 23rd September 2017. The venue is a training establishment for officials in the finance and banking industry and provided dedicated facilities for meetings and presentations with very adequate accommodation for delegates. The Deutscher Amateur Radio Club (DARC) hosted the conference. The IRTS was represented by Gerry EI8CC, Head of Delegation and Brendan EI6IZ. Séamus EI8BP and Dave EI3IO attended in their respective roles as members of the Political Relations Committee and Executive Committee. Their attendance was supported by Region One, IARU. The IRTS was among the smaller delegations but had the benefit of support from Dave and Séamus where their already heavy commitments allowed. The conference schedule was very demanding and to cover as much of the proceedings as possible it was vital to have such support so as to at least maintain a watching brief when the presence of a delegate was not possible.

Registration took place on Saturday and the latest conference documentation was distributed on registration. Prior to the conference around one hundred and fifty papers for consideration in Landshut were circulated to each member society. A group comprising EI8CC, EI6IZ, EI3IO, EI8BP and EI7CD met on 2nd September for a day-long meeting at the QTH of EI3IO to examine all of the papers received and to determine our society's position on each proposal. IRTS had one proposal on the agenda which was a follow on from our proposal on remote operation that was adopted at the Varna Region One conference and which addressed the issue in the context of awards and contests.

The conference is principally organised around seven committees who carry out the detailed work which is in turn presented to the plenary meetings which review this work, further develop it when required, and vote on all of the recommendations emanating from the committees.

The committees of the conference are:

Committee C1 – Conference Steering Committee, comprising members of the Executive Committee and Chairmen of the conference committees

Committee C2 – Credentials and Finance Committee, members elected at the opening plenary. Only Heads of Delegation (as observers on financial matters) and certain members of the Executive Committee may attend.

Committee C3 – Administration and Organisational Committee

Committee C4 – Permanent HF Committee

Committee C5 – Permanent VHF/UHF/Microwave Committee Committee C6 – The Election and Ballot Committee, members

elected at the opening plenary

Committee C7 – Permanent EMC Committee.

Meetings of Committees C3, C4, C5 and C7 were open to all delegates and accredited observers.

As a general approach to deployment of our resources Gerry EI8CC covered the C2 and C4 business with Brendan covering C5, C6 and C7 business.

Later I will mention some of the issues that were dealt with in the committees that may be of general interest. You will find the specific details on the output of the committees on the Region One IARU website. The purpose of this note is to give members an overall flavour of the proceedings of the conference and the enormous amount of work which is done in pursuit of the interests of the members of our society and of our sister societies.

The conference opened on Sunday with welcome addresses from the Vice President of DARC and from a member of the local parliament representing the Mayor of Landshut. The President of Region One IARU spoke briefly and introduced the global President of IARU, Tim Ellam, VE6SH. Tim covered a number of important topics around the current state of the amateur service. He told the conference that the IARU annual Administrative Council meeting had just been completed and positions on agenda items for the forthcoming WRC had been adopted. This was done in the full knowledge that a realism



At the IARU Region 1 General Conference 2017 Gerry EI8CC (IRTS), Dave EI3IO (IARU EC), Brendan EI6IZ (IRTS), Séamus EI8BP (IARU PRC) [Photo Graham G3VSV]

of what is achievable in a WRC cycle with our limited human and financial resources must be maintained. The theme that the amateur service cannot expect to be accorded the highest priority when dealing with both international and national agencies was one which Tim touched on and which was a recurring one at various points in the weeklong conference. He also referred to the contraction of financial resources available to the amateur service and the need to attract more people, particularly, though not exclusively, those who are younger. These were also themes which were given considerable time and attention at subsequent sessions.

Following Tim's address Thomas Weilacher of CEPT delivered a paper supported by a detailed powerpoint presentation. Thomas chairs the Working Group on Frequency Management in CEPT and has twenty years experience in radio spectrum utilisation concepts and international affairs in that field. His presentation, if you want to peruse it, is available on the IARU Region One website.

Mr. Mario Maniewicz, representing the ITU, also addressed the conference and acknowledged the contribution made by the amateur service to the science of communications. He also touched on the recognition by the ITU of the importance of effective regulation in supporting the continued development and deployment of new technologies. This is an area in which the amateur service can play a very significant role. The ITU is currently revamping its HQ and it has been decided that a new amateur station at 4U1ITU will form part of the new building specification.

The Roy Stevens G2BVN Memorial Award Committee was selected and adjudicated on nominations for the award. Two recipients were confirmed by the committee, Colin Thomas G3PSM who is a regular visitor to EI wearing his RSGB hat and Wolf Harranth OE1WHC who oversees the collection of radio related archival material.

The committee which examines and verifies credentials to the General Conference, establishes the right to vote and gives a report to the plenary meeting on the second day of the conference was selected. That committee also has the very important role of examining the financial situation of IARU Region One and gives a report on the last day of the conference. As mentioned Tim Ellam spoke about the issue of financial resources in his address and this was to be one of the main themes of this conference. Consequently the work of the Credentials and Finance Committee was hugely important.

Following a lengthy discussion I had with Joerg Jaehrig DJ3HW IRTS nominated him for chairmanship. The conversation centred on the necessity to focus the scarce financial resources on the core issues for the organisation, the principal one being the protection of our spectrum allocation. Joerge was duly elected along with representatives from six other societies. I attended meetings of this committee in an observer capacity as Head of Delegation.

The Election and Ballot Committee was selected and EI6IZ was elected to that committee. The EBC conducted the ballots throughout the course of the conference.

In line with general practice the President of the Region was nominated, seconded and elected as chairman of the General Administrative and Organisational Committee C3. This committee oversees the management and running of the conference. That concluded the formal business of the first plenary.

Also on Sunday the various Working Groups conducted their initial meetings. DARC had all of the necessary conference support facilities in place. They performed what was a major logistical operation in a very efficient manner.

Monday began with a short plenary to take the report from C2. It is worth noting the statistics presented by this committee in relation to society affiliations to the regional organisation, the societies that have not met their financial commitment to Region One, the number of delegations present and the number eligible to vote at conference. In summary there are ninety eight member societies in Region One. Twenty seven had not paid their membership fees by the commencement of conference so consequently there was potential for seventy one societies to vote. Just thirty nine societies were present with twelve present by proxy arrangement so that fifty one societies had voting powers. In a subsequent plenary meeting these figures were amended to reflect an additional society and proxy so that the total votes present were fifty three.

The figures in relation to membership fees clearly illustrate one of the underlying causes of the challenges faced by the organisation in the area of financial resources. Region One membership fees are of course a direct function of individual society membership numbers so it follows that the challenge begins with each member society to promote amateur radio and increased numbers.

C4 and C5, the Permanent HF and Permanent VHF/UHF/Microwave committees also began their meetings. It is in these committees that the issues around band planning, operating procedures etc. that are of most interest to operators are discussed. On the HF side about twenty papers were submitted for consideration while in the VHF committee there were about fifty six papers. These papers were discussed in committee, voted on where necessary and, if approved, brought forward to plenary for further discussion and adoption. Some papers, such as the IRTS paper, had implications for HF and VHF operating and so were presented in both committees.

On the HF side ten papers found their way to plenary. Our paper did not find support from any members present when presented in committee and it suffered the same fate in C5, so was among the papers that did not make it to plenary. The first recommendation adopted was on sideband usage below Ten MHz with LSB being recommended with the exception of 5MHz where USB is recommended. Recommendations on band planning for 3.5MHz, 5MHz and 50MHz were adopted. It was agreed that Sixty metres should be included on bands on which contests should be excluded and on the subject of contests a recommendation around encouraging contest organisers to enforce rules that ensure that band edges are strictly observed was adopted. The reiteration of the IARU Region One policy on beacons below Fourteen MHz was the subject of a recommendation which was adopted while a recommendation on the goal of achieving greater harmony between all three IARU regions was unanimously adopted. The observers from Regions Two and Three expressed support for this. The aforementioned comprised the most significant part of the C4 business but as mentioned already further detail for those interested may be read on the conference page of the IARU Region One website.

C7 is the permanent EMC committee. The papers presented at C7 are available at http://www.iaru-r1.org/index.php/downloads/func-startdown/980/ $\,$

Several of the papers presented in C7 dealt with the topic of measuring background noise levels and monitoring changes over time. Arising from this it was decided to set up a Noise measurement campaign designed to run over many years. The aims are to collect and normalize data to allow measurements to be compared with ITU-R standards for reference as far as is possible.

Investigate and incorporate where possible data from past noise measurement projects

- Devise methods for manual and automatic measurements by amateurs worldwide
- Develop Methods of Calibration to allow for reporting station calibration
- Create web and database services to allow for reporting of data and access to results

A working group was setup to run this project. Success will require a wide range of participation across a diverse range of interests. Brendan El6IZ is chairing the working group and would be most interested in hearing from anyone who might be interested in participating with any aspects of this project.

IARU position on certain WRC-19 Agenda items LA17_C7_08 This was taken in conjunction with Agenda Item 6, Wireless Power Transfer - Interference.

Tore gave an overview of the concerns surrounding Wireless Power Transfer (WPT) technology and its possible effects on the amateur radio spectrum.

WPT is used at present to charge mobile phones and laptops. This involves inductive coupling over a short distance at low power (e.g. 3 - 5 watts). It is also used for charging hearing aids and medical equipment.

WPT will be used in future for electric vehicle charging. Cars will be charged in garages using powers of up to 22 kW. It is predicted that 45 million units will be in use in Europe by 2025. The frequency being discussed for this application is 85kHz. It is not expected that there will be problems from the fundamental frequency but there are potentially severe problems from harmonics and other spurious emissions in amateur bands. In an urban environment there could be many charging points per hectare, hence separation distance of charger from amateur radio antenna may be quite small e.g., less than 10 m. The charger is likely to run for long periods day or night so probability of interference is high.

WPT may use communications on the carrier so it would be classified as a communication system as opposed to an ISM system. The issue is being discussed in CEPT (Spectrum Engineering) SE24 and ITU-R. CEPT expects parameters for these devices to be set by Spring 2018 so there is not much time to influence standards. The Standard specifies limits in carrier domain, spurious domain and out-of band. The proposed limits are high.

The IARU is working on a position to influence proceedings in SE24 to try to ensure that the Amateur Radio Services are protected as far as possible.

Dave, GOSNO, presented a paper on issues with some wind farms in the UK. There did not appear to be many issues reported in other countries, however this is one to watch. Claude, ON7TK presented a paper on HID streetlamps and the potential for interference.

Markus, HB9HVG, Presented a paper on Solar PV and Optimisers. The news here is relatively good in that He was able to engage with the manufacturers to improve the situation and there are new standards in progress that will set limits for the DC ports.

Since C7 is a new permanent committee and as this was the first

meeting of C7 at General conference C7 discussed and put forward the following terms of reference which were accepted in the final Plenary.

EMCC (C7) is a specialist technical body of IARU and deals with Electromagnetic Compatibility issues related specifically to the EU's Electromagnetic Compatibility (EMC) and Radio Equipment Directives in CISPR, IEC, ICNIRP, CENELEC and ETSI and other Region 1 entities of a similar nature, with the following Terms of Reference and objectives.

The EMCC shall:

- Monitor and research developments in relevant forums addressing EMC, which potentially impact the Amateur Service and Amateur-Satellite Service (the Amateur Services);
- Advise the EC on the workings of such forums affecting any matter which might impact on the interests of the

- Amateur Services and process material and undertake actions delegated to it by the EC in respect of these forums;
- Prepare submissions on EMC, detailing the views and concerns and objectives of the Amateur Services in relation to emerging technologies;
- Wherever feasible, influence EMC related standards to the benefit of the Amateur Services;
- Bring potential interference threats to the Amateur Services, from emerging technologies, to the attention of the RSMC and PRC, to influence relevant legislative changes and implementation, internationally and nationally; and
- Work in close and regular contact with specialists in MS to assist in the development of IARU EMC strategy;
- Provide advice on EMC concerns to IARU MS and coordinate actions in core areas in support of IARU Region 1 or IARU global EMC strategies.
- Keep a watching brief on all issues relating to EMF as they affect the Amateur Services

The work of Committees C2 and C3 continued throughout the week. I attended as time permitted. As I mentioned earlier one of the main themes of the conference was the financial situation of the organisation. A recommendation on an outline budget for 2018, 2019 and 2020 was adopted. It was also agreed that the financial impact of papers put forward to conference by member societies should be clearly set out. It was further agreed that if the number of members in the member societies of Region 1 does not increase significantly up to 2020 the annual fee per member should be adjusted in order to balance the budget outline. Such a step has not been taken for the last eighteen years.

Almost sixty papers over a very wide range of topics on the administration and organisational aspects of the organisation were considered in C3. A number of these dealt with the manner in which the business of conference should be managed including issues around the conduct of elections and presentation of papers. It was agreed that in six months after election the Executive Committee should publish a plan and after twelve months each EC member should report on their area of responsibility. Recommendations on the title of the Spectrum and Regulatory Liaison Committee and the terms of reference of the Political Relations Committee were adopted. These were of particular interest to IRTS as EI3IO and EI8BP were elected as chairs, respectively, of these committees. The work of the EMC committee was also discussed in some detail, as outlined above, and again this was of particular interest to us as EI6IZ is a member of this committee. The TORs for the Emergency Communications Coordinator were dealt with as were issues around QSLing, entrylevel and novice-level licensing and planning restrictions on antennas. As with the other committees more detail can be found in the convention report.

Committee C5 proved to be the busiest and most intense forum in the conference with well over fifty papers up for discussion. As mentioned earlier the IRTS paper did not find favour and so did not make it to plenary stage.

The first business was to endorse the recommendations from the C5 Interim Conference in Vienna. A recommendation that licensing authorities should be encouraged to implement measures necessary to protect amateur bands was adopted. A number of recommendations relating to revised band plans were adopted as were a number relating to the conduct of contests.

On contests, a Working Group with very detailed terms of reference on the management of them was established. The text and footnotes in the VHF manager's handbook were amended to reflect recommendations in relation to 50MHz use including notes on the operation of beacons in that band. Recommendations in relation to 2 metres in the area of band planning were adopted. A recommendation that preliminary work be carried out in the area of Licence Share Access was adopted in anticipation of it being necessary to consider it in the future in order to retain access to spectrum. It was also agreed that a task group be formed to compile a survey of actual band usage above 148MHz for the purposes of discussion in an ITU context. For the VHF/UHF/Microwave enthusiasts details of all of these recommendations can be found on the IARU Region One website.

On Monday evening following dinner a session was convened on the future of amateur radio. This session was entitled "Growing Amateur Radio" and was chaired by Don Beattie G3BJ. It had been heralded at the outset of the conference by both Don and Tim Ellam VE6SH that this discussion was of crucial importance to the consideration of the steps that need to be taken, not simply to develop the hobby and take it successfully into the future, but to ensure its actual survival. Don outlined his views on how the amateur service needed to be developed. His thought-provoking introduction was followed by a presentation by one of the younger delegates to the conference, Florian Zwingl OE3FTA. Florian gave a very interesting insight into how the younger generation of amateurs view the hobby, what the new areas of interest are and how they should be considered as an integral part of the hobby. This was in sharp contrast with the more traditional view of the hobby that many of us have held up to now.

This was followed by a very interesting presentation by Nico van Rensburg ZS1YT, Head of Delegation for South Africa. He described the development there of a very successful programme entitled "The Hammies". This initiative is aimed at very young schoolchildren there and brings them together in small clubs. It focuses on the appeal to youngsters of belonging to a club that is attractive to them and their peers and incorporates elements such as conducting their own activities and wearing a badge that demonstrates to their friends that they belong to a special group. SARL members help to conduct the club activities and mentor the aspiring radio amateurs.

Elsewhere in this edition of Echo Ireland you can read an account of Don's thoughts on this matter as he enunciated them at conference. One of the issues that we should reflect on in IRTS is that while we still debate the advantage or otherwise of the introduction of a novice licence to help secure the future of our hobby most other societies have taken the importance of that as a given, their licensing authorities have made provision for them and the focus is now on entry level licensing. That should give us pause for thought.

As mentioned earlier, Brendan EI6IZ was elected to C6, the Election and Ballot committee, at the outset of the conference. Balloting for the election of the Executive Committee and for selection of the venue for the 2020 conference took place during the course of the conference. Brendan assisted in overseeing the conduct of those ballots. There were proposals for hosting the conference presented by Bulgaria, Serbia and Macedonia. Serbia was successful and consequently the 25th IARU Region 1 Conference will be held in 2020 in Nova Sad.

Dave EI3IO was a candidate for the Executive Committee. Dave withdrew his candidacy on being elected Chairman of the Spectrum Regulatory Liaison Committee. Further, with Séamus EI8BP selected as Chairman of the Political Relations Committee and Brendan EI6IZ selected for the permanent EMC committee the society is well positioned to influence many significant issues that lie at the heart of the business conducted at IARU Regional level and that will have an impact on the future direction of the amateur service.

The result of the ballot on the election for the Executive Committee threw up an interesting result. IARU Region 1 is now managed by a committee that blends the experience of some old hands with the comparative youth and the enthusiasm of some new members. The result bodes well for the future of our hobby.

The Executive Committee for the next three years will comprise the following:

President: Don Beattie G3BJ Vice-President: Faisal Al-Admi 9K2RR

Secretary: Hans Blondeel Timmerman PB2T
Treasurer: Andreas Thiemann, HB9JOE
Members: Sylvain Azarian F4GKR,
Alessandro Carletti IV3KKW

Mats Epling SM6EAN Joerg Jaehrig DJ3HW Oliver Tabakovski Z32TO

That brought what had been a busy and at times intense conference to a close and we look forward to the next conference in Nova Sad hopefully with the amateur service on a path that will see it enduring into the future. A perusal of the report on Don Beattie's session on growing amateur radio, which you will find elsewhere in this edition of Echo Ireland, is advised.

Growing Amateur Radio IARU General Conference 2017

The following is a loose outline of a PowerPoint presentation made to a plenary session of IARU Member Societies by Don Beattie G3BJ, President IARU Region 1. It is prescient and thought provoking. For some it will be a call to action; for others it will make uncomfortable reading. Séamus EI8BP

Radio Amateurs – A Threatened Species

Within ten years – probably less – IARU member society numbers in many countries seem likely to be in freefall. The challenge facing IARU and Members Societies (MS) such as IRTS is to increase the inflow into amateur radio, particularly among the young. It is necessary to make Member Societies the "must join" society for radio amateurs.

This matters because without a strong amateur population our spectrum will be even harder to retain. Furthermore, it has to be recognised that amateur radio makes an economic contribution to the skills base of a country; it can drive innovation and therefore indirectly GDP. Amateur radio has in addition a social role to deliver.

A survey of the motivation, interests and concerns of recent and aspiring 21st century amateurs gave the following messages:

- Satellites and space
- Digital experimentation
- Contests
- Latest technology
- Member Societies not interested
- People giving up
- The noise floor threat
- Lack of good PR for amateur radio
- Amateur radio as a social activity

What was not there was

"Talking to people around the world"

Why is this? In the 21st century there are competitors – over 20 social networking sites with more than 100 million active users. This suggests that the basic communications capability of amateur radio is taken for granted by 21st century amateurs and not seen as an attraction.

They want to use amateur radio for higher level reasons:

- Space communications
- Experimenting especially with data & computer systems over radio
- Innovation, experimentation, invention and creativity
- Competitions (contests)
- They have a highly developed digital awareness and competence

But to do this they need a supportive and challenging environment in which they can gain confidence in amateur radio.

In contrast the average 20th century amateur probably

- Was attracted by the global communications capability of amateur radio –friends around the world
- Was fascinated by "how things work"
- Spent some time as a short wave listener
- Can't program an Arduino or in C++
- Finds hardware solutions to problems rather than software
- Doesn't find FT8 appealing (that's not Amsterdam & St Paul!)
- Doesn't see satellites as "real" amateur radio

Future Strategy

There are areas of future strategy and opportunities that must be addressed by IARU MS and by the members of those societies. Some future themes for consideration, discussion and action include:

- Schools what strategy will really work?
- Making amateur radio fun and a social activity
- Outreach hackerspace and other groups. How do we take Amateur Radio to them?
- Social media who drives the process for each MS?
- Licence structure do we all share the view on this?
- Antennas and planning
- Youth / PR focus who in the MS drives this?
- PR generally how do we create a resource centre and skill transfer
- The nature of amateur radio how do we redefine it?
- ARISS/Satellites/digital
- Getting the right society top team
- Having an offering tailored to the audience, now and future
- Offering our spectrum for broader use
- Short duration projects
- Using young people to lead the change and explaining that to older members

Schools

- STEM
- Go to the schools don't wait for them
- Clubs Task group?
- Fun projects Gather experiences
- Licensed teachers
- Ballooning Create resource centre

- Amateur Radio = safe activity Create network
- Academic credits
- Funcube & ARISS
- Inter-schools contact
- Teachers get them inspired

Making Amateur Radio "Fun"

- Competition
- Social
- Belonging to an elite group
- A welcome on the part of the local club
- Recogition—Awards
- Learning and discovery
- Quick results/success
- Space is fun + so is ballooning
- KICC
- Discover that kits are fun and easy
- Use amateur radio to teach

Outreach

- Accept the newcomers will want to use the hobby differently
- PR material
- Let the young people do it
- Collaboration with other young people groups
- Part of an exclusive group = "I want to be part of that"
- Easy to take the first steps
- Amateur Radio gives a skill base -> PR message

Social Media

- Who does what and with what?
- Young generation = social media competent
- Older generation not fully engaged?
- Use of video
- Paying to promote via SM
- Put into Youth PR role

Licence Structure

- Build a case to the regulator
- Get over "it wasn't like this in my day"
- Need to assess current status, but provide arguments
- NB non-distinctive callsign
- Task for the EC of IARU to advance this

Youth and PR focus

- Youth working group within IARU
- Promote JOTA

PR Generally

- Brand
- Image
- Message
- Collateral materials for PR
- Multiple channels
- How do we stimulate local clubs to be part of the solution?

Remote Operations - IRTS Proposal IARU General Conference 2017

At the 2014 IARU Region 1 Conference in Varna, some conditions proposed by IRTS relating to remote-controlled operation were adopted and were subsequently published in the IARU HF and VHF Managers Handbook.

At a special meeting of the IRTS Committee in Portlaoise in April 2017, a paper seeking to amend one of those 2014 conditions was approved, and submitted to IARU.

Subject—Remote Operations

Introduction:

Remote Operation refers to two-way communications between individual licensed amateur-radio operators where part of the communications between the operators is hosted, or relayed, by any electronic communications network (external to the station) using spectrum not allocated to the amateur service, to the extent that no communications between the operators would be possible without such network.

Background:

It is evident that remote operation, while both legitimate (with certain restrictions) and increasingly popular, differs from two-way contacts which depend only on amateur-band RF. Amateur-radio QSOs are, by their nature, independent of other electronic communications networks. It is this independence that renders radio amateurs uniquely qualified to assist in times of emergency.

Key Points and Proposal:

Remote operation differs from the traditional style of amateur radio operation, even though no differences may be observable by listeners or by those amateurs being worked.

Certain issues about remote-control operation were dealt with at the Varna Conference in 2014

"4. Any further requirements regarding the participation of remotely controlled stations in contests or award programmes are a matter for the various contest or award programme organisers."

Recommendations:

Paragraph 4 \dots above be deleted and the following substituted -

4. Member societies should not accept remote contacts on the same terms as non-remote entrants for contesting or other operating awards.

There was no support for this recommendation from any other IARU society. It seems that those societies do not attach any particular significance to *how* radio amateurs contact one another for contesting or award purposes. In effect, internet-hosted contacts are considered to be equivalent to contacts which depend only on RF.

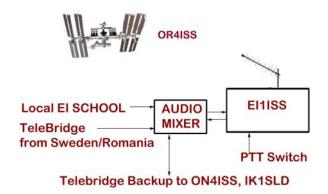


Amateur Radio on the International Space Station (ARISS) inspires students, worldwide, to pursue interests and careers in science, technology, engineering and math through amateur radio communications opportunities with the International Space Station (ISS) on-orbit crew.

Dan Cussen EI9FHB submitted a comprehensive application in 2015 and again in 2016 for direct contact with EI schools in Tallaght, Dublin and Glanmire, Cork. Dan's hard work and persistence paid off. There were some 54 applications and 17 potential free slots available as some are reserved for ESA and for astronaut's home countries. Of the 17 slots two were allocated to EI for contacts which took place in October 2017.

Dan EI9FHB constructed a ground station at both locations to speak directly to the ISS. He already had experience in space communication having been the architect of the HAMTV receiving station in Cork which is part of a European network to support television form the amateurs on board the ISS.

The contact was shared with schools in Sweden and Romania who were relayed via "telebridge" through the Irish station EI1ISS. The contact from Tallaght, where there were nearly 600 students present, was with ESA Italian astronaut Paolo Nespoli and signals were FB. Unfortunately the link to Sweden was not reliable and Tallaght had to ask most of the questions.



The contact from Glanmire, where there were nearly 1300 students, was with NASA astronaut Joe Acaba. Once again signals were FB. Dan was assisted by Joe EI7GY and Séamus EI8BP together with members of South Dublin Radio Club and Cork Radio Club who help during the preparations, which took over three days in each case. There was significant media interest from national newspapers and TV as well as local coverage.

The enthusiasm and cooperation of the teachers and students was overwhelming. What a great way to introduce practical STEM and amateur radio.

To Dan EI9FHB, well done!



Above - Tallaght Community School

Below - Glanmire Community College





ATV Past, Present and Future

Steve Ormondroyd EI4KM

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The great thing about the hobby of amateur radio is that it encompasses so many aspects of science and technology that stretch all the way back to the birth of radio, right up to the present day where computing power is ever present. This rich history allows us so many diverse operating modes, and so many specialist niches within the hobby.

The particular niche of our hobby that has interested me for many years is that of amateur television (that is fast scan television). I guess I converged on this aspect of the hobby both in terms of interest, and my occupation. As a child I developed an interest in all things electric and electronic, much to my parent's alarm, and I survived to my teenage years to develop an interest in DX television. At the time I lived on the very eastern coast of the UK (East Anglia). I had inherited a black and white television which operated on the television standard of the day. This was the 405 line black and white AM system operating on the 5 channels that were Band 1. The interesting thing about Band I is that our current 6 metre allocation lies roughly at its centre, and as many of you will know it is often called the 'magic' band. The 'magic' being that it can quickly change from almost local line of sight flat propagation, to enhanced propagation giving reception over considerable distances and continents. This sort of enhanced propagation was a source of annoyance to the BBC, who often had to apologise for severe patterning on the picture along with sound breakup from continental 'interference', but was a delight to me as I was able to pick up broadcasts from considerable distances by tuning around Band 1. At the time test cards were broadcast for the majority of the day, so identification of stations was easily possible. Wideband antennas for Band 1 took shape in my parent's loft, and I took photographs of test cards ranging from ones such as RUV Iceland to RTV Rhodesia, to give just two examples.

Upon leaving school I obtained an apprenticeship at a large television manufacturing plant first owned by Pye, and then Philips. As I travelled around the factory complex eventually ending in the development department, I came across a few individuals who actually transmitted signals rather than just received them. These seemingly rarefied individuals, were amateur radio operators whose example I eventually followed, and I took something called the Radio Amateurs Exam finally obtaining a B licence to transmit RF on the VHF bands and above. In those days you needed Morse to use the HF bands below 30MHz which I did not obtain at the time. Whilst, many things blew me off-course for some years after that, such as the factory closing, and a totally different career path, all the ingredients were there for me to become an amateur television enthusiast and operator. The knowledge of TV theory and practice, now with the legal right to generate my own RF signals at VHF and above using that particular mode, were the necessary ingredients for what was to follow.

One of the major challenges to radio amateurs transmitting ATV, apart from the equipment required to do so, has often been that of the bandwidth available to amateurs to use, compared with that required by television. Compare for example the bandwidth required for a SSB transmission,



A view of the author's station

some 3kHz in width, to that of even a 405 line picture of about 3.5MHz without a sound carrier. Greater definition 625 line colour pictures with sound can take up to 8MHz! This meant that early ATV enthusiasts, who became somewhat more numerous by the 60's onwards were confined to the upper part of the 10MHz-wide 70cms band, but even then had particular bandwidth restrictions applied to their transmission to make that possible. ATV operators were then, as often is the case now, at the forefront of technology as such frequencies were considered high, and RF circuitry was only just beginning its transition to lower noise semiconductors, from that of valves.

However, when I actively took up amateur radio again in the 80's the move to 23cms ATV had begun and valves were becoming obsolescent. The relatively large bandwidth of 23cms band allowed ATV operators to use FM video modulation with a bandwidth of around 16MHz, but now with a colour subcarrier, as well as FM intercarrier sound. Whilst this advance was welcomed it once again pushed amateurs up to new frequency heights with new challenges to be met. High-gain aerials were needed along with very low loss coaxial cable, and receivers often had a preamp in front of them. This was the band I became most active on in the



Test Card F from EI4KM

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The antenna system

80's until well after the turn of the century. Whilst a range of about 30km was possible with a some effort, it was for the most part over flat ground and line of sight. Reception beyond that sort of distance required more and more effort for rapidly diminishing returns, and very snowy pictures! However, enhanced propagation, which occurs mainly in the summer months, can once again result in much greater distances being covered, and one highlight I remember vividly was exchanging a P5 picture (maximum quality) with another amateur in the Belgium capital. He photographed the on screen picture of me and sent it to me via email. Amateur television on this band in Ireland remains a good possibility for the newcomer and seasoned enthusiast alike. Portable working from hills, or mountain tops, in the warmer months can extend range as it partially reduces the effect of the earth's curvature. The 23cms band in Ireland, is as far as I can tell, not plagued by interference of the sort affecting some other countries

Unlike many other modes equipment has never been too readily available, or marketed specifically at ATV operators on a commercial basis. Consequently, kits based on individual components were available at the start of the 23cms FM era, which then finally gave way to the use of video senders and receivers, often modified, to form the basis of equipment. Some specialised European manufacturers also made some very good equipment in the form of various modules, but these were in small numbers. Integrated circuit type power amplifier modules from the likes of Mitsubishi also came on the scene, and very much simplified power amplifier design on the band. However, today, much of the equipment has dried up except on the second hand market. I myself have a Solent/Worthing 1.5W transmitter which had to be assembled from individual components onto a supplied PCB, then aligned and cased. I also have video senders and receivers from the likes of Comtech which required no building at all and were very popular, to higher quality modules mainly of Dutch or European origin. I have power amplifiers using Mitsubishi modules giving 2w, 18w or 100w output, with various input sensitivity. I am currently using a 44-element wideband 23cms beam made by RSE/Wimo as the transmit antenna, and have another available for receive along with a preamp, and an old fashioned fully tuneable satellite receiver from the early days of analogue satellite reception. The I/F input from the LNB of most satellite systems coincides with our 23cms band directly.

The number of stations I have worked whilst living here in Co Wexford on 23cms FM can be counted on one hand, but I hope to set up skeds next summer working hilltops with likeminded ATV operators to see what distances can be achieved that way. I have also had contacts on 23cms to Wales and Cornwall using SSB, or FM, voice, and hope to replicate that sometime using ATV. I would also be pleased for anyone living in my locality to approach me directly if they are interested in trying ATV. Myself, and one local operator, already have regular two way simultaneous ATV contact, with me transmitting pictures to him using 70cms digital, and he transmits his picture to me using 23cms FM.

Before I moved here from the UK over two years ago the 23cm band had become increasingly 'polluted' by its primary user the military whose radar installations increased their power and signal complexity to 'see' through off shore wind farms. This had a quite devastating effect on ATV signals on the band. Whilst moves to higher frequencies were possible, many of which had already been used by amateurs, it presented more problems and challenges to users only familiar with operating on 23cms. However, it was at this time that the use of digital TV began to emerge as a possibility which was initially pioneered in Germany, and then taken up by the U.K. amongst others. So faced with the prospect of change, some within the ATV community opted to develop and use digital ATV instead of FM analogue. This was compounded by further pressures to reduce the width of amateur allocations for things like mobile broadband. The standard adopted for digital ATV is that of DVBS, that is to say digital satellite, rather than digital terrestrial DVBT (which has encoding to combat ghosting). Whilst analogue FM requires about 16MHz bandwidth, the recommended bandwidth used by DVBS on 23cms is 4MHz, and can be reduced further if necessary. It is in fact reduced to 2MHz on 70cms to fit it into the top part of the band where reduced bandwidth AM television was once used, and eventually abandoned with other services using, and competing for space, at the top part of the 70cms band. Digital ATV has allowed television to return to the 70cms band in colour with stereo sound!

So today I have equipment capable of transmitting digital ATV signals on 70cms, and 23cms, and the transmit bandwidth is defined by the number of mega symbols used,



Transmitting ATV DVBS on 437MHz, and monitoring outgoing picture



FM 23cms analogue transmit and receive (top shelf), video and sound selection, plus on screen titles (lower shelf)

and is easily set by the transmitter. Whilst, as with analogue, no commercial transmitters are available aimed at the ham radio operator, second hand surplus equipment can sometimes be picked up, and the British Amateur Television Club now offers a built transmitter, as well as a part kit based project for transmitting very low bandwidth television, i.e. a third of a MHz, as well as a similar kit which is available to receive such signals. The UK licensing authority, Ofcom, has been instrumental in allowing individual amateurs to apply for an extension of the 2 metre band to 147MHz, for experimentation with new digital modes including television, in which reduced bandwidth television has been tried with success. The various web sites are listed below, and the BATC site contains a great deal of information for those who are interested in amateur television.

I have transmitted digital ATV on 23cms, and 70cms to a few amateurs within Co. Wexford up to a distance of 45km, and hope to achieve far greater distances if interest increases. I have previously managed a range of 65km on 70cms over flat ground and conditions with my current equipment, but the distance record is increasing well beyond 500km at the moment mainly due to tropospheric ducting! The transmit side unfortunately costs more than reception, as reception requires no more than a suitable free-to-air satellite receiver and suitable antenna, with perhaps a preamp depending upon distance (turn off the LNB voltage output unless it powers an external preamp). The transmit side once again requires power amps to increase range as before, but when amplifying digital signals they need to be as linear as possible, and under driven to quite a degree to avoid distorting the quadrature nature of the signal (QPSK) and broadening the width of the overall signal. Also filtering has to be employed to eliminate any out of pass band spurii generated by DDS frequency generators (Direct Digital Synthesis as used in much current ham gear).

So what of the future? Whilst ATV operators are currently showing their usual ingenuity by adapting FPV (First Person Video) modules used in drones to send video signals on the 5.6GHz band. By far the most newsworthy story is that of a geostationary satellite called Es'hail sat which has the potential to cover a third of the earth surface, and of course unlike the current satellites we use with amateur radio such as AO-85, it will be usable without having to wait for it to pass



In QSO mode

over us. However, it will be at a considerable height in the sky, and not simply passing over us at a comparatively low orbit height. Its uplink frequency will be on the 2.4GHz S band, and its downlink frequency will be on the 10.450GHz X bands. Whilst it will have a 250kHz frequency slot for more conventional analogue transmissions, it will also have an 8MHz frequency slot for experimental digital modulation modes, which will include DVBS, or DVBS2 amateur television. It is anticipated that it will finally be launched in early 2018, and that reception should be possible with a dish of 0.8 metre diameter, although transmit will require a dish of around 2.4 metres. I think this could form this basis for many an interesting club project, and you wouldn't have to stand on our highest peak to get it to work !!!

References

BATC http://www.batc.org.uk/ or its Wiki https://wiki.batc.tv/

Narrow band 146-7 MHz television http://rsgb.org/main/files/2014/03/146MHz_TV-update-Radcom_Oct-2016.pdf

5.6 GHz FPV information https://wiki.batc.tv/5.6_GHz

For details of Qatar's Es'hail sat https://amsat-uk.org/satellites/geosynchronous/eshail-2/

or on YouTube

https://www.youtube.com/watch?v=392RvHjAPxg

https://www.youtube.com/watch?v=jNkxcKKfDm4

IRTS QSL Service Special Event Call Signs

The outwards and inwards QSL service is available free to IRTS members, whether individuals or clubs, for their own call and for special event stations licensed to them.

The service is also available free to JOTA stations, irrespective of whether an IRTS member is the licence holder.

Operators of special-event stations should supply details to the relevant incoming QSL Manager listed on www.irts.ie and on the inside front cover of Echo Ireland



Contest NewsJoe Ryan EI7GY

contestmanager@irts.ie

IRTS Contest Results (section winners are overleaf)2 Metres Counties Contest, 27th August

This year's August 2 metres counties contest was reasonably well supported, with a welcome increase over previous years in the number of stations and counties on the air. The logs submitted listed more than 60 EI and GI stations in 26 counties, the "missing counties" being Cavan, Donegal, Laois, Monaghan, Tyrone and Wicklow. Band conditions were OK but variable: from my perch on the Slieve Blooms I could hear plenty of doubling on occasions, partly a consequence of the deep QSB.

SSB Field Day, 2nd & 3rd September

This IRTS contest coincides with the IARU Region 1 SSB Field Day. It's an ideal contest for clubs, and indeed three of the five logs submitted were from clubs. Band conditions for this contest were poor, 20m and 40m were the main productive bands. Some stations managed a few QSOs on 15m and even 10m on Sunday morning.

The turnout in EI for field day contests is low, although in fairness the picture is somewhat similar throughout Europe: in the UK, 37 stations were out portable for SSB field day this year, low in proportion to the UK radio amateur population; the picture is better in Germany, where 123 stations were out portable. In contrast, the ARRL field day contest (an all-mode HF and VHF contest) attracts up to 1,700 portable entries in North America.

40 Metres Counties Contest, 8th October

Our HF counties contests, which are modelled on the very successful 2 metres events, have focused on local QSOs, with just the 32 counties (EI+GI) as multipliers. In the recent past, as we move towards the solar sunspot minimum, local HF propagation has been erratic and we have begun to rely more on overseas QSOs to keep busy during HF counties contests. Recognising this change, we have revised the scoring system to now include overseas DXCC entities as multipliers in all HF counties contests.

The October 40 metres event was the first to run with the extended range of multipliers. Band conditions for local and overseas contacts were quite good, so we had plenty of inter-EI/GI QSOs (27 counties logged) plus contacts with 17 overseas DXCC entities; the results page show the counties and DXCC entities logged. The scoring continues to favour inter-EI/GI activity, with a 4:1 advantage for these local QSOs. Comments included in the submitted logs were very positive towards the new scoring system.

80 Metres Evening Counties Contest, 7th November

Evening counties contests were introduced in 2016, with an SSB event in February and a CW event in November. As the November 2016 CW-only event was not well supported, for 2017 we decided to run these evening contests as mixed-mode events.

On 7th November the band was particularly noisy as we were in the middle of a geomagnetic storm, but at least the F2

Critical Frequency remained just above 3.8 MHz for the duration of the contest, so inter-EI/GI QSOs were possible. However, many of us found that on phone it took patience to get the exchange right. For me, this mixed mode contest provided a good example of the advantage of CW over phone when band conditions are marginal.

21 logs were submitted, showing 31 EI stations and 10 GI stations in 21 counties active; 11 overseas DXCC entities were also logged.

2018 Contest Calendar

Next year's contest calendar is now on the web site. Last year we trialled a 70 centimetres contest just ahead of the Easter Monday 2 metres event and this trial proved successful. For 2018, we plan to run a one-hour 70 centimetres contest ahead of both the Easter Monday and the Autumn 2 metres contests. The Autumn 2 metres event has traditionally been at the end of August, and so has to compete with holidays and GAA semi-final fixtures for support. The GAA have now announced that from 2018 onwards, both All-Ireland finals will be played in August, so for 2018 we have moved the Autumn contest to the second weekend in September.

A Few Rule Changes

As contest manager, during the IRTS contests I tend to spend more time listening around than operating; just to note the levels of activity and monitor observance of the rules. After the contest I take copies of cluster activity for the contest period. This monitoring has highlighted some contest QSOs outside of the contest-preferred band segments and also use of the cluster during contests where the cluster is not permitted, in particular self-spotting or asking to be spotted. In an effort to deal with these issues I have listed the contest preferred segments in the HF Field Day rules (the permitted frequencies have been in the counties contest rules for a number of years). I have also added a specific rule to the General Contest Rules to the effect that "Self-spotting or asking to be spotted is not permitted". Bear in mind that, with the exception of VHF/ UHF Field Day, if you are participating in an IRTS contest you should not be using the DX Cluster or other spotting network.

Logging and Adjudication

Most contest organisers now insist that logs are submitted in Cabrillo format, and set the log deadline from one hour to 5 days after the end of the contest. We continue to have a more relaxed approach for contest logs – we accept any format provided the relevant data fields are accessible, and allow 14 days for submission – because at least half of those submitting logs for the IRTS counties contests are *not* using computer logging. Quite a few paper logs are submitted for each contest, and other electronic formats such as Excel and Word documents are also used. All the logs received for counties contests are entered into the cross-checking database which identifies and highlights possible errors and uniques. Decisions on which QSOs to disallow are made after an examination of the highlighted records.

Contest Exchange and Random Numbers!

Contests are designed to test a number of amateur radio skills, including logging accuracy. To test this accuracy, we have a 'contest exchange', which typically includes a signal report – invariably 59(9) – and an incrementing serial number. A multiplier – county, province, zone, locator etc. – is also frequently included in the exchange. These typical exchanges represent a far from ideal test of logging accuracy, because the exchange is *predictable*, and post-contest editing of logs – using audio recordings – can be used to defeat the logging accuracy objective of contests.

UKEICC (The United Kingdom and Ireland Contest Club) have developed a contest exchange that aims to overcome some of these problems and so put a greater focus on logging accuracy. They recently ran two experimental contests (one each for SSB and CW) where the exchange was a pseudorandom 4-digit number between 1000 and 9999 (no leading zeros and no signal reports), the generated 'random' number being based on the data fields of the previous QSO. This exchange removes the predictability and diminishes the ability to undertake post-contest editing (as subsequent log amendments may be identified by the adjudication software).

There was limited support for the initial two experimental contests, probably because they were run with little notice and were not supported by some of the popular contest loggers; more such contests are planned for 2018, when there should be better contest logger support. Keep an eye on the UKEICC web site ukeicc.com for news.

Islands On The Air

The annual IOTA contest, held at the end of July, is a popular contest that has always been well supported by Irish stations: 30 EI and GI stations submitted logs for the 2017 contest. Local entries included stations on Aranmore Island and Bere Island. Although it has a worldwide following, entries are dominated by European stations, which accounted for almost 50% of the 160 island groups active during the contest. Worldwide, more than 2,300 logs were submitted, with East Cork Amateur Radio Group EI7M topping the scores and taking 1st place in the Island Multi-Two High Power section. See www.irts.ie/iota for the EI/EJ and GI/MI station results.

IARU HF Championship

This is a 24-hour worldwide SSB/CW contest under the auspices of IARU held on the second full weekend of July every year. ARRL manages this contest on behalf of IARU. Multipliers include ITU Zones and IARU member society HQ stations, so the HQ stations are very much in demand. The IRTS HQ station call sign is **EIØHQ** and in general has been allocated by agreement to individual IRTS licensed members who agree to look after one or more band/mode slots for the duration of the contest. Individual logs are then merged before submission. There have been difficulties coordinating this process, firstly getting agreement on the allocation of band/mode slots and secondly gathering the logs together before the log submission deadline (which was 30 days, but will be 5 days from 2018 onwards).

In 2016 we agreed that the EIDX group would operate the IRTS HQ station, and this worked very well. I would like to have a similar arrangement in place for 2018, i.e. one group to take responsibility for all band/mode slots. The contest takes place on 14th/15th July and will be a particularly high profile event as the World Radiosport Championship 2018 takes place in conjunction with this contest.

I invite IRTS affiliated contest or DX groups – or indeed any group of IRTS members – to apply to operate the IRTS HQ station for this contest.

Forthcoming IRTS Contests

80m Counties Contest SSB/CW – Monday 1st January 15:00 UTC (2h)

80m Evening Counties Contest SSB/CW – Tuesday 20th February 20:00 UTC (1h)

Links

Contest rules & calendar: www.irts.ie/contests
Contest results: www.irts.ie/results
UKEICC: www.ukeicc.com

		I	Radio I	News Bulletins and Readers
Sunday				
National	1100	7.123	SSB	Sean EI7CD, Paul EI2CA
Dublin	1145	145.525	FM	Tony EI5EM, John EI7JG, Frank EI6EF, Liam EI3HK
National	1200	3.650	SSB	Sean EI7CD, Eddie EI3FFB
Mayo	2100	145.600	FM	Padraic EI9JA, John EI7FAB,
				Jimmy EI2GCB, John EI8GIB, Dominic EI9JS
Tipperary	2030	145.450	FM	Tommy EI2IT, Ronan EI4KN
Monday				
Cork	2000	145.750	FM	Vincent EI7HN
Limerick	2000	145.725	FM	Brian EI9AL, Simon EI7ALB, John EI5HDB, Harry EI2KL
Louth	2000	145.675	FM	Anthony EI2KC, Jim EI2HJB
Tuesday				
Waterford	2130	145.650	FM	David EI6GVB, Sean EI2HZB, Mark EI7IS

IRTS Contests: Section Winners

2m Counties, 27th August

SSB/FM High Power Portable EI2SBC/P, Shannon Basin Radio Club

(ops: EI3FW EI8IU)

SSB/FM Low Power Portable EI5KO/P, Keith Wallace

SSB/FM Low Power Portable

(outside EI) MI/EI7GEB/P, David Morgan

SSB/FM High Power Fixed EI6JK, Mark Condon

SSB/FM High Power Fixed

(outside EI) MIØRRE, Robert Rantin

SSB/FM Low Power Fixed EI4L, John Kelly

FM Only EI4GXB/P, Ger McNamara

SSB Field Day, 2nd/3rd September

Open Section EI1C/P, Cork Radio Club

(ops: EI2KA EI3GS EI4BZ EI5GSB

EI6BT EI8GS)

Restricted Section / 6 hours EI7GY/P, Joe Ryan

40m Counties, 8th October

SSB Only Fixed, EI/GI Stations EI7HDB, Dale McWilliams

(ops: EI7HDB EI7HKB)

SSB Only Portable, EI/GI Stations EI2WRC/P,

South Eastern Amateur Radio Group

(ops: EI3HQB EI6GVB EI7IS)

SSB/CW Fixed, EI/GI Stations
SSB/CW Portable, EI/GI Stations
SSB/CW WAW Stations
EI5KF, Gerard Scannell
EI5KJ/P, Keith Crittenden
EI88WAW, WAW Kerry

(ops: EI3KM EI9FVB)

SSB Only, Outside EI/GI MØXDX, Paul Dumpleton SSB/CW, Outside EI/GI MØDDT, Colin Potter

80m Counties, 7th November

SSB Only, EI/GI Stations
SSB/CW, EI/GI Stations
SSB Only, outside EI/GI
SSB/CW, outside EI/GI

EI DXCC Single Band Status as at 3rd December 2017

Compiled by Joe Ryan EI7GY

		160	80	40	30	20	17	15	12	10	6	2
10	EI2JD	160	80	40	30	20	17	15	12	10	6	
10	EI3IO	160		40			17	15	12	10	6	
10	EI7BA	160		40			17		12	10	6	
10	EI9FBB	160		40				15		10		
9	EI2GLB	100		40						10		
9	EI6IZ	160		40				15		10	0	
8	EI6FR	100		40				15	12			
8	EI7GY			40			17	15	12			
8	EI9FVB			40			17	15		10		
7	EI1DG		00			20				10		
7	EI1DG EI4BZ		90	40				15	12	10		
7	EI4BZ EI8IU		00			20			12	10		
6					30		17					
6	EI7JZ EI9HX			40 40			17	15 15	12 12			
5							17		12	10		
	EI4CF			40				15	10			
5	EI4GJB						17			10		
5	EI4HH						17		12			
5	EI6AL			40		20	17	15		10		
5	EI6JK			40		20		15	12	10		
5	EI8GS			40		20		15		10		
5	EI9E		80	40		20		15		10		
5	EI9GLB						17	15	12	10		
5	EI9JF			40	30		17	15				
4	EI3GV					20	17	15		10		
3	EI3CTB					20		15		10		
3	EI4GK					20		15		10		
3	EI4GNB					20		15		10		
3	EI5EV					20		15		10		
3	EI6FM					20		15		10		
3	EI6HB					20		15		10		
3	EI7GL			40						10	6	
3	EI9HQ					20		15		10		
2	EI2II					20				10		
2	EI4DQ										6	2
2	EI5IF					20		15				
2	EI7IG					20		15				
2	EI7JN					20		15				
2	EI8IQ					20		15				
2	EI8JX					20		15				
1	EI3EBB										6	
1	EI3HA					20						
1	EI5FQB					20						
1	EI5GSB					20						
1	EI6S		80									
1	EI9CJ									10		
		160	80	40	30	20	17	15	12		6	2
						_				_		



Some of the team ops at EI9E during the CQWW SSB 2017 who entered the Multi Two section Seamus EI3KE, Thos EI2JD, Declan EI9HQ, Aidan EI8CE and John EI2FG (seated)

EI DXCC Listings - Compiled by Joe Ryan EI7GY as at 3rd December 2017

Entries in Bold Type show changes since 1st September 2017

								202	EIOEDD	170 ELCI7	
Mixe	d	213 E	EI8JX	213	EI3IO	151	EI6FM	282	EI9FBB	170 EI6IZ	
357	EI6S	212 E	EI1DG	144	EI6IZ	145	EI6HB	213	EI8IU	168 EI7JZ	
353	EI7CC			138	EI9FBB	144	EI4GJB	206	EI9FVB	167 EI6AL	
								188	EI6FR	144 EI7GL	
348	EI6FR			125	EI2JD	139	EI9HQ				
346	EI8EM	179 E	EI7JZ			138	EI6AL	164	EI2GLB	140 EI6FM	
345	EI7BA	169 E	EI7IG	80m		133	EI5FOB	164	EI6IZ	136 EI4GK	
336	EI9FBB	127 E	EI9CF	310	EI6S	133	EI5IF	154	EI6AL	131 EI7GY	
							EI3GV	151	EI2JD	125 EI9GLB	
334	EI3IO			298	EI7BA	130					
329	EI5GM			244	EI9FBB	129	EI4GNB	140	EI6JK		
328	EI9O	113 E	EI2KK	176	EI6FR	126	EI3CTB	134	EI7JZ	116 EI3CTB	
324	EI2GLB			171	EI2JD	126	EI3HA	131	EI1DG	116 EI9HQ	
								128	EI3IO	112 EI4GJB	
320	EI4II			151	EI3IO	115	EI7IG		EI7GY		
312	EI6IZ			145	EI6IZ	113	EI4GK	117			
312	EI8FH	100 E	EI3KE	123	EI4BZ (+3)	112	EI8IQ	110	EI9HX	111 EI9HX	
308	EI8IU			120	EI2GLB	105	EI2II	103	EI9GLB	105 EI6HB	
		100 L						100	EI4GJB	104 EI3GV	
306	EI2HY			116	EI9E	102	EI5EV				
306	EI4CF	Phone		108	EI7GY	102	EI5GSB	100	EI4HH	101 EI2II	
304	EI2JD	354 E	EI6S	103	EI8GS					101 EI5EV	
303	EI2CR			100	EI9FVB	17m		10m			
				100	LIM VB		EIZD A	308	EI7BA	6m	
300	EI9FVB		EI8EM			334	EI7BA				
297	EI7JZ			40m		306	EI9FBB	284	EI9FBB	164 EI3IO	
287	EI9JF	338 E	EI6FR	318	EI7BA	302	EI6FR	262	EI3IO	150 EI9FBB	
279	EI9GLB			258	EI9FBB	249	EI8IU	229	EI6FR	118 EI7BA	
								227	EI2GLB	111 EI7GL	
269	EI8GS			256	EI6FR	238	EI6IZ		EI9FVB		
268	EI4BZ (+1)	309 E	EI3GV	216	EI6IZ	210	EI2GLB	215			
268	EI6AL	307 E	EI3IO	209	EI4CF	210	EI9FVB	202	EI8IU	107 EI2JD	
263	EI5JQ			206	EI2JD	197	EI2JD	199	EI2JD	101 EI3EBB	
								199	EI4CF	100 EI4DQ	
262	EI2GX			202	EI3IO	170	EI6AL			100 LI4DQ	
249	EI1DG	291 E	EI2GLB	191	EI2GLB	163	EI7GY	183	EI4BZ		
249	EI4HH	291 E	EI9FVB	177	EI9JF	162	EI4CF	180	EI4HH	2m	
245	EI5GUB			154	EI6JK	162	EI7JZ	173	EI6JK	145 EI4DQ	
							E1/JZ	173	EI9E		
243	EI6JK			151	EI7JZ	155	EI9HX				
237	EI7GY	279 E	EI9GLB	142	EI4BZ (+3)	148	EI4HH	171	EI8GS		
230	EI4GXB	277 E	EI8IU	138	EI9E	147	EI1DG	170	EI1DG		
215	EI6FM			129	EI8GS	146	EI3IO				
214	EI5IF			128	EI9HX	146	EI9JF		DVCC	Honor Roll	
212	EI9E	241 E	EI6JK	125	EI9FVB	127	EI4GJB		DACC	HOHOL KOH	
210	EI6IL	225 E	EI9JF	120	EI1DG	121	EI9GLB				
209	EI7JN			120	EI7GY	112	EI4BZ (+1)	Mixe	ed	Phone	
								339	EI6FR/348	337 EI7BA	1/343
197	EI4IR			117	EI7GL	108	EI3GV				
193	EI3HA	216 E	217CH	116	EI8IU			339	EI7BA/345	337 EI8EN	/1/346
		216 E	EI7GL	110	LIGIC						
191	EI6HB			110	Liore	15m		338	EI7CC/353	336 EI6S/3	
191		213 E	EI4BZ (+1)		Lioic	15m	FI7RA	338	EI7CC/353	336 EI6S/3	354
191 189	EI9HQ	213 E 212 E	E I4BZ (+ 1) EI6AL	30m		333	EI7BA	338 337	EI7CC/353 EI6S/357	336 EI6S/3 336 EI7CC	354 C/351
191 189 184	EI9HQ EI5EV	213 E 212 E 211 E	E I4BZ (+1) EI6AL EI6FM	30m 332	EI7BA	333 312	EI6FR	338 337 337	EI7CC/353	336 EI6S/3	354 C/351
191 189	EI9HQ EI5EV EI7IG	213 E 212 E 211 E	E I4BZ (+1) EI6AL EI6FM	30m		333		338 337 337	EI7CC/353 EI6S/357 EI8EM/346	336 EI6S/3 336 EI7CC	354 C/351
191 189 184	EI9HQ EI5EV	213 E 212 E 211 E 208 E	E I4BZ (+1) EI6AL EI6FM EI4GJB	30m 332 258	EI7BA EI9FBB	333 312 305	EI6FR EI9FBB	338 337 337 333	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336	336 EI6S/3 336 EI7CC 330 EI6FR	354 C/351
191 189 184 175 174	EI9HQ EI5EV EI7IG EI3CTB	213 E 212 E 211 E 208 E 208 E	E I4BZ (+1) EI6AL EI6FM EI4GJB EI9E	30m 332 258 253	EI7BA EI9FBB EI6FR	333 312 305 257	EI6FR EI9FBB EI8IU	338 337 337	EI7CC/353 EI6S/357 EI8EM/346	336 EI6S/3 336 EI7CC 330 EI6FR	354 C/351 V/338
191 189 184 175 174 170	EI9HQ EI5EV EI7IG EI3CTB EI4GNB	213 E 212 E 211 E 208 E 208 E 200 E	E I4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL	30m 332 258 253 233	EI7BA EI9FBB EI6FR EI6IZ	333 312 305 257 251	EI6FR EI9FBB EI8IU EI4CF	338 337 337 333	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336	336 EI6S/3 336 EI7CC 330 EI6FR	354 C/351 V/338
191 189 184 175 174 170 167	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN	213 E 212 E 211 E 208 E 208 E 200 E 191 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA	30m 332 258 253 233 231	EI7BA EI9FBB EI6FR EI6IZ EI3IO	333 312 305 257 251 250	EI6FR EI9FBB EI8IU EI4CF EI2GLB	338 337 337 333	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR	354 C/351 L/338
191 189 184 175 174 170 167 162	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH	30m 332 258 253 233 231 167	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF	333 312 305 257 251 250 249	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB	338 337 337 333	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336	336 EI6S/3 336 EI7CC 330 EI6FR	354 C/351 L/338
191 189 184 175 174 170 167	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH	30m 332 258 253 233 231	EI7BA EI9FBB EI6FR EI6IZ EI3IO	333 312 305 257 251 250	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB	338 337 337 333	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR	354 C/351 L/338
191 189 184 175 174 170 167 162 160	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II	30m 332 258 253 233 231 167 159	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB	333 312 305 257 251 250 249 232	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD	338 337 337 333	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA	354 C/351 L/338
191 189 184 175 174 170 167 162 160 135	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ	30m 332 258 253 233 231 167 159 156	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY	333 312 305 257 251 250 249 232 227	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO	338 337 337 333	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA	354 C/351 L/338
191 189 184 175 174 170 167 162 160 135 131	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF	30m 332 258 253 233 231 167 159 156 137	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU	333 312 305 257 251 250 249 232 227 223	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ	338 337 337 333 330	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA	354 C/351 L/338
191 189 184 175 174 170 167 162 160 135 131 128	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA	213 E 212 E 211 E 208 E 200 E 191 E 188 E 186 E 177 E 177 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI5IF EI5IF	30m 332 258 253 233 231 167 159 156 137 127	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB EI7GY EI8IU E12JD	333 312 305 257 251 250 249 232 227 223 202	EI6FR EI9FBB EI8IU EI4CF E12GLB EI9FVB E12ID E13IO E16IZ E14BZ	338 337 337 333 330	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA	354 C/351 L/338
191 189 184 175 174 170 167 162 160 135 131	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB	213 E 212 E 211 E 208 E 200 E 191 E 188 E 186 E 177 E 177 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI5IF EI5IF	30m 332 258 253 233 231 167 159 156 137	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB EI7GY EI8IU E12JD	333 312 305 257 251 250 249 232 227 223	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ	338 337 337 333 330	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA	2/351 1/338 1/343 1/343 1/339
191 189 184 175 174 170 167 162 160 135 131 128	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA	213 E 212 E 211 E 208 E 200 E 191 E 188 E 186 E 177 E 177 E 166 E	EI4BZ (+1) E16AL E16FM E14GJB E19E E16IL E13HA E12CH E17II E19HQ E15IF E19FE E19FC	30m 332 258 253 233 231 167 159 156 137 127 121	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB E17GY E18IU E12JD EI4BZ (+1)	333 312 305 257 251 250 249 232 227 223 202 197	EI6FR E19FBB E18IU E14CF E12GLB E19FVB E12JD E13IO E16IZ E14BZ E17JZ	338 337 337 333 330 2917 2534	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY	2/343 \(\sigma/338\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 177 E 166 E 162 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9FC EI5FQB	30m 332 258 253 233 231 167 159 156 137 127 121	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD EI4BZ (+1) EI9FVB	333 312 305 257 251 250 249 232 227 223 202 197 193	EI6FR E19FBB E18IU E14CF E12GLB E19FVB E12JD E13IO E16IZ E14BZ E17JZ E16JK	338 337 337 333 330 2917 2534 2175	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA	2/343 \(\sigma/338\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 177 E 166 E 160 E 160 E 160 E 160 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9FC EI5FQB	30m 332 258 253 233 231 167 159 156 137 127 121	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB E17GY E18IU E12JD EI4BZ (+1)	333 312 305 257 251 250 249 232 227 223 202 197 193 187	EI6FR E19FBB E18IU E14CF E12GLB E19FVB E12JD E13IO E16IZ E14BZ E17JZ E16JK E19E	338 337 337 333 330 2917 2534 2175	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY	2/351 1/338 1/343 1/343 1/339
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB	213 E 212 E 211 E 208 E 208 E 200 E 188 E 186 E 177 E 166 E 160 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9FC EI5FQB EI5FQB	30m 332 258 253 233 231 167 159 156 137 127 121 106 104	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD EI4BZ (+1) EI9FVB	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG	338 337 337 333 330 2917 2534 2175 1964	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 157 E 157 E 157 E 157 E 166 E 157 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9CN EI5FQB EI5III EI6HB EI4GNB	30m 332 258 253 233 231 167 159 156 137 127 121 106 104	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD EI4BZ (+1) EI9FVB EI1DG	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182 181	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS	338 337 337 333 330 2917 2534 2175 1964 1840	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 157 E 157 E 157 E 157 E 166 E 157 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9FC EI5FQB EI5FQB	30m 332 258 253 233 231 167 159 156 137 127 121 106 104	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD EI4BZ (+1) EI9FVB	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG	338 337 337 333 330 2917 2534 2175 1964 1840 1766	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 157 E 143 E 143 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9FC EI5ED	30m 332 258 253 233 231 167 159 156 137 127 121 106 104 20m 340	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB E17GY EI8IU E12JD EI4BZ (+1) EI9FVB EI1DG	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182 181 172	EI6FR E19FBB E18IU E14CF E12GLB E19FVB E12ID E13IO E16IZ E14BZ E17JZ E16JK E19E E11DG E18GS E19HX	338 337 337 333 330 2917 2534 2175 1964 1840 1766	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 101	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 157 E 143 E 131 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI5IF EI9FC EI5IF EI9FE EI9CN EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB	30m 332 258 253 233 231 167 159 156 137 127 121 106 104 20m 340 336	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9IF E12GLB E17GY E18IU E12JD E14BZ (+1) E19FVB E11DG	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182 181 172	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH	338 337 337 333 330 2917 2534 2175 1964 1840 1766 1726	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New)	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 157 E 143 E 131 E 116 E E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9F EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9FE EI9CN EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB	30m 332 258 253 233 231 167 159 156 137 127 121 106 104 20m 340 336 329	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD EI4BZ (+1) EI9FVB EI1DG EI7BA EI6FR EI9FBB	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182 181 172 171 168	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL	338 337 337 333 330 2917 2534 2175 1964 1840 1766 1726 1720	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 160 E 143 E 131 E 104 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9FC EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI1DG	30m 332 258 253 233 231 167 159 156 137 127 121 106 104 20m 340 336 329 266	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD E14BZ (+1) EI9FVB EI1DG	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182 181 172 171 168 151	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY	338 337 337 333 330 2917 2534 2175 1964 1840 1766 1726 1720 1554	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 167 162 160 135 131 128 127 116 104 103 101 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 160 E 143 E 131 E 104 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9FE EI9FC EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI1DG	30m 332 258 253 233 231 167 159 156 137 127 121 106 104 20m 340 336 329	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD EI4BZ (+1) EI9FVB EI1DG EI7BA EI6FR EI9FBB	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182 181 172 171 168	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL	338 337 337 333 330 2917 2534 2175 1964 1840 1766 1726 1720 1554	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF	213 E 212 E 211 E 208 E 200 E 191 E 188 E 177 E 166 E 160 E 157 E 143 E 131 E 116 E 103 E 104 E 103 E 104 E 103 E 103 E 103 E 103 E 103 E 104 E 103 E 103 E 103 E 103 E 103 E 104 E 103 E 104 E 103 E 103 E 103 E 104 E 103 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9E EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FC EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI1DG EI3HDB	30m 332 258 253 233 231 167 159 156 137 127 121 106 104 20m 340 340 329 266 261	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD E14BZ (+1) EI9FVB EI1DG EI7BA EI6FR EI9FBB EI2JD EI3IO	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182 181 172 171 168 151 149	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ	338 337 337 333 330 2917 2534 2175 1964 1840 1766 1726 1720 1554 1531	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU EI9FVB	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 167 162 160 135 131 128 127 116 104 103 101 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 157 E 143 E 131 E 104 E 103 E	EI4BZ (+1) EI6AL EI6FM EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9CN EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI1DG EI3HDB EI6GGB	30m 332 258 253 231 167 159 156 137 127 121 106 104 20m 340 236 336 332 29 266 261 257	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB EI7GY EI8IU E12JD E14BZ (+1) E19FVB EI1DG EI7BA EI6FR E19FBB E12JD EI3IO EI3IO	333 312 305 257 251 250 249 232 227 223 202 197 193 187 182 171 168 151 149 139	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB	338 337 337 333 330 2917 2534 2175 1964 1726 1720 1554 1531 1466	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF	213 E 212 E 211 E 208 E 200 E 200 E 191 E 188 E 186 E 177 E 166 E 162 E 160 E 157 E 143 E 131 E 104 E 103 E 103 E 102 E 103 E 102 E 102 E 102 E 102 E 103 E 102 E 102 E 103 E 102 E 103 E 102 E	E14BZ (+1) E16AL E16FM E16AL E16FM E14GJB E19E E16IL E13HA E12CH E17II E19HQ E15IF E19FC E19FC E19FC E15EGB E12II E16HB E14GNB E15GSB E16CPB E11DG E13HDB E16GGB E14DJB	30m 332 258 233 231 167 159 156 137 127 121 106 104 20m 340 336 329 266 261 257 256	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB E17GY EI8IU E12JD EI4BZ (+1) EI9FVB EI1DG EI7BA EI6FR E19FBB E12JD EI3IO EI3IO EI9HX EI4CF	333 312 305 257 251 250 249 232 227 202 197 193 187 182 171 168 151 149 139	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB EI6HB	338 337 337 333 330 2917 2534 2175 1964 1726 1726 1750 1531 1466 1206	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF EI1DG	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF EI9GGB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 157 E 116 E 104 E 103 E 103 E 101 E	EI4BZ (+1) EI6AL EI6FM EI16GM EI14GJB EI19E EI16IL EI3HA EI2CH EI7II EI19HQ EI5IF EI9FE EI9FC EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI1DG EI3HDB EI6GGB EI4DJB EI3IP	30m 332 258 253 233 231 167 159 156 104 104 20m 336 329 266 261 257 256 256	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB E17GY E18IU E12JD E14BZ (+1) E19FVB E11DG EI7BA E16FR E19FBB E12JD E13IO E13IO E19HX E14CF E19FVB	333 312 305 257 251 250 249 232 227 193 187 182 171 168 151 149 136 132	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB EI6HB EI4GNB	338 337 337 333 330 2917 2534 2175 1964 1726 1726 1750 1531 1466 1206	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF EI1DG	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100 100 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF EI9GGB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 157 E 116 E 104 E 103 E 103 E 101 E	EI4BZ (+1) EI6AL EI6FM EI16GM EI14GJB EI19E EI16IL EI3HA EI12CH EI7II EI19HQ EI5IF EI19FE EI9CN EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI11DG EI3HDB EI6GGB EI4DJB EI3IP	30m 332 258 233 231 167 159 156 137 127 121 106 104 20m 340 336 329 266 261 257 256	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB E17GY EI8IU E12JD EI4BZ (+1) EI9FVB EI1DG EI7BA EI6FR E19FBB E12JD EI3IO EI3IO EI9HX EI4CF	333 312 305 257 251 250 249 232 227 202 197 193 187 182 171 168 151 149 139	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB EI6HB	338 337 337 333 330 2917 2534 2175 1964 1726 1726 1750 1531 1466 1206	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100 100 100 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF EI9GGB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 157 E 116 E 104 E 103 E 103 E 101 E	EI4BZ (+1) EI6AL EI6FM EI4GJB EI9PE EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FE EI9CN EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI1DG EI3HDB EI6GGB EI4DJB EI3IP EI3GAB	30m 332 258 253 233 231 167 159 156 104 104 20m 336 329 266 261 257 256 256 255	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD EI4BZ (+1) EI9FVB EI1DG EI7BA EI6FR EI9FBB EI2JD EI3IO EI3IO EI3HX EI4CF EI9FVB EI8IU	333 312 305 257 251 250 249 232 227 202 197 193 187 182 171 168 151 149 139 136 132 130	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB EI6HB EI4GNB EI8JX	338 337 337 333 330 2917 2534 2175 1964 1726 1726 1750 1531 1466 1206	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF EI1DG	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100 100 100 100 CW 343 339 333	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF EI9GGB	213 E 212 E 211 E 208 E 200 E 191 E 186 E 177 E 166 E 157 E 143 E 116 E 103 E 103 E 101 E 100 E	EI4BZ (+1) EI6AL EI6FM EI6AL EI6FM EI4GJB EI9E EI16IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FC EI9CN EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI1DG EI3HDB EI6GGB EI4DJB EI3IP EI3IP	30m 332 258 253 233 231 167 127 121 106 104 20m 340 336 332 29 266 261 257 256 255 248	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD E14BZ (+1) EI9FVB EI1DG EI7BA EI6FR EI9FBB EI2JD EI3IO EI9HX EI4CF EI9FVB EI8IU EI2GLB	333 312 305 257 251 250 249 232 227 223 202 197 188 181 172 171 168 151 149 139 136 132 130 125	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB EI4GNB EI4GNB EI8JX EI6FM	338 337 337 333 330 2917 2534 2175 1964 1726 1726 1750 1531 1466 1206	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF EI1DG	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GN	2/343 \(\lambda/339\)
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100 100 100 100 100	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF EI9GGB	213 E 212 E 211 E 208 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 157 E 143 E 131 E 104 E 103 E 103 E 102 E 100 E ETTY/	EI4BZ (+1) EI6AL EI6FM EI6AL EI6FM EI4GJB EI9E EI16IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FC EI5FQB EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI1DG EI3HDB EI6GGB EI4JJB EI3JDB EI3GAB Digital	30m 332 258 253 231 167 159 156 137 127 121 106 340 336 329 256 261 257 256 256 248 247	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD E14BZ (+1) EI9FVB EI1DG EI7BA EI6FR EI9FBB EI2JD EI3IO EI9HX EI4CF EI9FVB EI8IU EI2GLB EI6IZ	333 312 305 257 251 250 249 232 202 197 193 187 181 172 171 168 139 136 132 130 132 125 122	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB EI6HB EI4GNB EI8JX EI6FM EI3CTB	338 337 337 333 330 2917 2534 2175 1964 1726 1726 1754 1531 1466 1206 1176	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF EI1DG EI4BZ (+13)	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GM 1018 EI9JF	854 C/351 L/338 L/343 A/339
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 103 101 100 100 100 100 100 100 100 100	EI9HQ EI5EV EI7IG EI3CTB EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8JB EI3GAB EI4GD (New) EI4HQ EI8KF EI9GGB	213 E 212 E 211 E 208 E 200 E 191 E 188 E 186 E 177 E 166 E 160 E 160 E 131 E 104 E 103 E 103 E 102 E RTTY/305 E E	EI4BZ (+1) EI6AL EI6FM EI6AL EI6FM EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9HQ EI5IF EI9FC EI9FC EI5IF EI9FC EI5CN EI5FGB EI4GNB EI4GNB EI5GSB EI6CPB EI1DG EI3HDB EI6GGB EI4DJB EI3GAB Digital EI7BA	30m 332 258 253 233 231 167 159 156 137 127 121 106 104 20m 340 336 329 256 257 256 256 255 258 248 247 223	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF E12GLB EI7GY EI8IU E12JD E14BZ (+1) E19FVB EI1DG EI7BA EI6FR EI9FBB E12JD EI3IO E19HX EI4CF E19FVB EI8IU E12GLB EI6IZ EI7JZ	333 312 305 257 251 250 249 232 227 197 193 187 182 171 168 151 149 139 136 132 130 125 122 120	EIGFR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2ID EI3IO EI6IZ EI4BZ EI7IZ EI6IK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB EI6HB EI4GNB EI8JX EI6FM EI3CTB EI4GJB	338 337 337 333 330 2917 2534 2175 1964 1726 1726 1754 1531 1466 1206 1176	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF EI1DG	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GM 1018 EI9JF	854 C/351 L/338 L/343 A/339
191 189 184 175 174 170 167 162 160 135 131 128 127 116 104 100 100 100 100 100 100 CW 343 339 333 321 309	EI9HQ EI5EV EI7IG EI3CTB EI4GNB EI9CN EI5FQB EI4GZB EI9CF EI5GSB EI8HA EI9CJ EI6CPB EI9GWB EI3HDB EI7JQ EI8IB EI3GAB EI4GD (New) EI4HQ EI8KF EI9GGB	213 E 212 E 211 E 208 E 200 E 200 E 191 E 188 E 186 E 177 E 166 E 162 E 160 E 157 E 131 E 104 E 103 E 101 E 100 E 100 E 100 E 252 E 252 E 255 E	EI4BZ (+1) EI6AL EI6FM EI6AL EI6FM EI4GJB EI9E EI4GJB EI9E EI6IL EI3HA EI2CH EI7II EI9FN EI5IF EI9FC EI9FC EI5IF EI9FC EI5FQB EI2II EI6HB EI4GNB EI3CTB EI5GSB EI6CPB EI1DG EI3HDB EI6GGB EI4DJB EI3GAB Digital EI7BA EI6FR	30m 332 258 253 231 167 159 156 137 127 121 106 340 336 329 256 261 257 256 256 248 247	EI7BA EI9FBB EI6FR EI6IZ EI3IO EI9JF EI2GLB EI7GY EI8IU EI2JD E14BZ (+1) EI9FVB EI1DG EI7BA EI6FR EI9FBB EI2JD EI3IO EI9HX EI4CF EI9FVB EI8IU EI2GLB EI6IZ	333 312 305 257 251 250 249 232 202 197 193 187 181 172 171 168 139 136 132 130 132 125 122	EI6FR EI9FBB EI8IU EI4CF EI2GLB EI9FVB EI2JD EI3IO EI3IO EI6IZ EI4BZ EI7JZ EI6JK EI9E EI1DG EI8GS EI9HX EI4HH EI6AL EI7GY EI8IQ EI9GLB EI6HB EI4GNB EI8IX EI6FM EI3CTB EI4GJB EI3GV	338 337 337 333 330 2917 2534 2175 1964 1726 1726 1754 1531 1466 1206 1176	EI7CC/353 EI6S/357 EI8EM/346 EI9FBB/336 EI3IO/334 DXCC EI7BA EI9FBB EI6FR EI3IO EI6IZ EI2JD EI2JD EI2GLB EI7CC EI8IU EI9FVB EI4CF EI1DG EI4BZ (+13)	336 EI6S/3 336 EI7CC 330 EI6FR CW 337 EI6FR 334 EI7BA Challenge 1173 EI7JZ 1160 EI7GY 1090 EI6JK 1060 EI9HX 1059 EI5GM 1018 EI9JF	854 C/351 L/338 L/343 A/339
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Silent Key Dermot Kevin Donnelly EI2AF



The death occurred on Monday 23rd October of Dermot Kevin Donnelly of Crozon Downs, Sligo and formerly of Park Drive, Ranelagh in Dublin. Dermot had not been active on the air for some time.

To his wife Kitty and to his sons Alexis and Fergal we extend our sincere sympathy.

May he rest in peace

Silent Key Rupert Masterson EI2FD



We regret to record the death of Rupert Masterson EI2FD of Ballinalee Co. Longford. on 16 September.

Up until a couple of years ago Rupert was a regular caller on the News frequencies and was active on the bands generally.

To his partner Barbara, his son Paul and to his extended family we offer our sincerest sympathy.

May he rest in peace

Silent Key Derek McGonagle



The death occurred suddenly on Wednesday 29th November of Derek McGonagle EI7CHB.

An appreciation by Skerries Radio Club

Many years ago Derek and a few other like-minded radio people from ham radio experimenters, Citizen Band operators and SWLs got together and founded the North County Radio Club (EI2NCR). After a couple of different locations Derek offered the club the use of a small cottage at the end of his property for us to use, and on club nights we had the choice of using the radios in one room or the real fire in the other room.

Derek had a few hobbies over his many years with us and those that knew him would certainly say he was an active man and a very sprightly 82 years young. He was always out and about either with his radios, camera or one of his drones; he was a hard man to get at home at times.

In the radio part of Derek's life he had great fun with his radios, from his home and going QRP portable to the numerous locations around his home in Skerries, from the likes of Ardgillen Castle to the various mills.

Being only around 10m from the waters edge he would certainly make use of the salt water amplifier on HF and would enjoy many a rag chew to people both near and far.

He lived life to the full even to the end; only the week before he died he spent it in Westport playing Bowls in an all-Ireland championship with one of his fellow players being his wife Marguerite.

On the fateful night Derek and Marguerite were dining with friends when he suddenly became ill, and in a few short hours he was gone.

We would like to pass on our deepest sympathy to Marguerite and his many, many friends near and far.

Rest in peace young man, you certainly earned it.

73 from all at Skerries Radio Club.



Silent Key

William Kieran (Bill) Ryan EI8BC

It is with the deepest of sympathy that we report the passing of William Kieran (Bill) Ryan from Portmarnock (formerly of Drumcondra) on Wednesday 18th October.

Bill was a longtime member of North Dublin Radio Club and a founder member of the QRP club at the Marino Institute of Education.

Bill used to say to friends that he had the oldest Irish callsign EI8BC. He will be deeply missed by all his family and friends.

To his wife Eileen and to his son Michael, sister Irene and brother-in-law John we extend our sincere sympathy.

May he rest in peace

Members Ads

For Sale: Kenwood TS-140S HF Transceiver, MC-43S handheld Mic + 12V DC Cable, Owners Manual - All V.G.C. €350

Yaesu FRG-100 HF receiver, incl FM module, 500Hz narrow CW filter, PA-11C 12V PSU €350 Photos of all items available.

Malcolm EI8FH 087 8385919 maljoyce8@gmail.com

Silent Key Sale: Yaesu FT 920 €700. Linear Amplifier 6m Discovery €800 Linear Amplifier SPC HF ATU €400 LDG AT1000 auto HF ATU €400 Mags KNT-1000 13.8V 12A PSU €25. Watson 13.8V 35A PSU €80. Hari 6:1 1kW HF balun €30. MFJ 921 144 MHz ATU €70. Motorola M110 4m FM €40. Phillips M290 144 MHz €50. SMC2546L8 430 MHz €40. MFJ 1278B Data Controller €200. Timewave PK12 TNC €20. G3RUH 9600 BD TNC €30 Dave, EI3IO 087 236 7580 EI3IO@connogue.com (Equipment in Shankill, Dublin 18)

For Sale: SG-2020 HF Transceiver, ideal SOTA rig €200, Bencher twin paddle €50, 6-section aluminium telescopic mast, extends to 10 metres €100 4 connecting sections of 50mm diameter aluminium mast, each 1.8 metres long €80
Joe EI7GY 01 285 4250
joe.ei7gy@gmail.com



Your Society Needs You!

To ensure continued publication of Echo Ireland an Editor is urgently required

Contact Gerry EI8CC

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